RURAL SELF-HELP HOUSING: A POST OCCUPANCY EVALUATION OF HOMEOWNERS' SATISFACTION WITH RESIDENTIAL SPACE PLAN DESIGN AND HOUSING QUALITY

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(ABSTRACT)

The purpose of this research was to investigate the housing satisfaction of rural, self-help homeowners with respect to the interior of their houses. This research surveyed households' satisfaction with respect to housing quality and residential space plan design. Aspects of housing quality included: durability and maintenance of interior building materials; appliances (range, heating and cooling units); plumbing and electrical; and furnishings (cabinet, flooring, countertops). Aspects of residential space plan design included: storage areas, size of areas, and location of rooms and features.

The sample for this research included 303 homeowners who built their homes through the Community Housing Improvement Program's (CHIP) Rural Self-Help Program between years the 1991 and 1997. These households came from the California counties of Butte, Glenn, and Shasta. Elements from the mail and drop off survey methods were used; 121 respondents returned the survey. This yielded a 40% return rate. The data were analyzed using descriptive statistics (frequencies, percentages and means), chi-square, one-way ANOVA, independent samples t-test, and regression analyses.

The mean age of respondents was 38 years and 78% were Hispanic. Of those who completed the survey, 57% of the respondents were female and 42% were male.

The findings revealed that the respondents were moderately satisfied with the interior of their houses with respect to storage areas, size of rooms, location and features, and housing quality. There was overall satisfaction with the interiors of their houses. Analysis of all of the characteristics researched showed that respondents' overall opinion of housing quality, size of area, and storage area aspects were more important indicators of overall housing satisfaction than their overall opinion of location of rooms and features. Further analysis revealed that the location of the subdivisions, number of bedrooms, number of bathrooms, and demographic characteristics of the respondents were not a significant determinate of overall housing satisfaction.

With respect to skills learned during the self-help training process and the respondents' completion of their own alterations and modifications, both skills learned and the performance of alterations and modifications were correlated with overall housing satisfaction. For respondents who completed simple and/or inexpensive improvements, the ability to complete the improvements was influenced in whole or in part by the training they received in the self-help training process. Furthermore, the respondents who completed alterations or modifications were no more likely to be satisfied with the interiors of their houses than those respondents who performed no alterations or modifications.

Based upon the findings from this research, recommendations for both design of CHIP's future Rural Self-Help Housing developments and recommendations for policy development were formulated.

DEDICATION

This dissertation is dedicated to the memory of my Grandmother, Velma Albaugh Zappettini (1912-1998) who made an everlasting impression on my life.

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"The secret of getting ahead is getting started. The secret of getting started is breaking your complex overwhelming tasks into small manageable tasks, and then starting on the first one". *Mark Twain*

To choose to pursue a Doctor of Philosophy degree is one thing but finishing it is quite another. The process of completing this research was similar to the mutual self-help process discussed in the content of this work. The process was the collective efforts of several people who worked together for a common goal.

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Chapter 1
INTRODUCTION

Many Americans dream of one day owning their own home. Whether it be a rustic bungalow, a 1950s starter home, or a newly built tract home in suburbia, one thing remains constant: the desire for homeownership. Homeownership is the preferred tenure choice by nine of ten Americans (Myers, 1981) as demonstrated by a national homeownership rate of 66.8% in the last quarter of 1999 ("Rural Homeownership Hits Record High," 2000). A percentage of the nation's homeownership rate is attributable to opportunities for more low-income households to become homeowners.

Unfortunately, not all households possess the financial resources that allow them the freedom to choose whether to own or rent; this is especially true for many low-income households (80% or below of median income). For this segment of the population, the American Dream is often impossible or very difficult to attain for one or more reasons. A sizable down-payment, property taxes, mortgage payments, homeowner's insurance, and general maintenance are costs that often preclude this segment of the population from ownership. For some households, these cumulative costs would create a financial housing burden because more than 30% of their income would be spent on housing costs. According to the Department of Housing and Urban Development (HUD) standards, a household that pays more than 30% of its income for housing costs is overpaying. For other households, simply securing the down payment is the primary obstacle that prevents them from entering the housing market.

Homeownership opportunities for low-income persons are problems shared by persons in urban areas as well as rural areas. Characteristics such as housing quality, location of the site within a community, cost, available services, and infrastructure, differ between urban and rural areas. It is not uncommon for rural Americans to pay a larger proportion of their income for housing costs, and

in fact, "...most of the 3.9 million poor households in non-metropolitan areas of the United States pay extremely large portions of their limited incomes for housing costs" (Lazere, Leonard, & Kravitz, 1989, p. vii).

Low-income, rural households prefer to live in single-family dwellings (Becker, 1977; Jaure, Rapoza, & Swesnik, 2000). In 1991, 79% of rural American households lived in single-family homes compared to 64% of urban households (Tin, 1993). Furthermore, at the end of 1999, the rural homeownership rate was 75.4% compared to the national rate of 66.8% ("Rural Homeownership Hits Record High," 2000). Unfortunately, although housing conditions improved tremendously between 1970 and 1990 " ... more than 2.7 million rural Americans lived in substandard housing in 1990" (Housing Assistance Council, 1994, pg. 31). Because rural households pay a larger share of their income for housing, many choose housing with one or more deficiencies in order to reduce their cost burden. In addition, there has been a decline in the availability of affordable rental units in rural areas.

In response to the financial challenges and substandard housing conditions of low-income, rural households, many nonprofit housing organizations have developed homeownership programs that address the obstacles mentioned previously. Low interest and/or deferred loans and grants, commonly referred to as mortgage subsidies, come from local, state, and/or federal funding sources. These mortgage subsidies can significantly reduce the mortgage loan amount required. Lower loan amounts consequently translate into affordable monthly principle and interest payments. With subsidies in place, down payments for low-income, rural households are reduced to nominal amounts compared to those of conventional mortgage markets.

To further reduce mortgage loan amounts, some housing nonprofit organizations have paired the *self-help* construction method with mortgage subsidies to increase the level of financial assistance. The *self-help* form of

construction, founded on the early American barn raising practice, utilizes the labor (sweat equity) of the future owner(s) to reduce the cost of the house. A household is credited with a percentage of the total house cost in exchange for household labor.

Self-help homeownership projects have provided single family homeownership opportunities for many low-income, rural households. In fiscal year 1995, 1,136 Rural Development Section 502 loans were approved. Of these 1,136 loans, over 375 (more than 33%) were granted to California households that could not have otherwise afforded to purchase a home without this program (Collings, 1996). Although the production of these single-family dwellings is needed (and many continue to be built), there is limited knowledge about participant homeowners with respect to their satisfaction with housing quality and residential space plan design.

Many studies about self-help housing have focused on mortgage histories (Collings, 1996; Housing Assistance Council, 1987; Matan, 1985; Quercia, McCarthy, & Stegman, 1995) whereas, little research has been completed on housing satisfaction (Pilling, 1981). In general, housing satisfaction among homeowners who have participated in rural, self-help programs in the United States has been the subject of little investigation. Therefore, research related to rural, self-help homeowners' satisfaction with the interior of their housing could assist agencies who implement rural, self-help programs to identify needed improvements in design, materials, and construction techniques as a means to enhance their overall programs.

Justification of the Study

Down payment, interest rates, monthly mortgage payments, and credit history can become obstacles for people in the process of seeking

homeownership opportunities. In addition to these issues, there are other conditions, such as availability, affordability, and quality, which are characteristically found in rural settings that influence homeownership opportunities.

Homeownership can be difficult for households in rural areas because of the limited availability of affordable units. According to a study conducted by Lazere, Leonard, and Kravitz (1989), since the 1970s, there has been a decline in the availability of affordable rental units in rural areas. Therefore, a problem is created because there is a high demand for the limited supply of affordable housing units. Furthermore, as incomes decline, the percentage of income spent on housing increases.

Although more than half of the rural households owned their homes in 1985, approximately 65% paid at least 30% of their income for housing, approximately 22% paid at least 70%, and one of three poor homeowners paid at least 50% of their income for housing (Lazere, Leonard, & Kravitz, 1989). These households clearly experienced a housing cost burden.

Generally speaking, housing quality has improved greatly in recent decades, but the incidence of problems such as exposed wiring and nonfunctioning toilets, still exist. Rural homeowners are more inclined to live in older units (pre-World War II), with moderate to severe structural and other problems than urban homeowners. Problems include, but are not limited to, rats, inadequate heating equipment, inadequate sewage disposal, and/or an inadequate water supply. The percentage of deficiencies is higher in rural areas than urban areas. Housing quality is affected by deficiencies that can pose health and safety hazards as well as increasing maintenance costs that can become a financial burden to low-income households.

Nonprofit housing organizations that have self-help programs can provide only anecdotal information about their clients' satisfaction with housing quality

and residential space plan design. Statistical information about their clients' levels of satisfaction would be an effective tool that could enable self-help housing developers to evaluate whether or not they are providing high quality, desirable housing. Without any post-occupancy evaluation, self-help builders will probably continue to construct the same models, with the same materials, using the same processes. Affordability is not the only issue; housing quality and residential space plan design are important as well.

Statement of the Problem

Many nonprofit housing organizations across America have developed self-help housing programs that provide homeownership opportunities specifically for low-income, rural households. In 1994, there were 70 Self-Help Housing Programs that were members of the National Rural Self-Help Housing Association. Although these nonprofit organizations are quite diverse with respect to location and/or experience, they have at least one similar objective: that is to provide affordable housing for low- and very low-income rural clients.

Many of these organizations document their housing production. Data may include the number of completed houses, ethnicity or race of their clients, the number of persons per household, and many other similar demographic characteristics. Although these statistics are utilized frequently and provide some insight, most organizations lack information about their clients' satisfaction with their housing after they have purchased and occupied the house. This is vital information that could prove to be useful to improve and/or maintain satisfaction of future homeowners.

One such housing organization, Community Housing Improvement Program, Incorporated (CHIP) has a rural self-help program serving rural areas in the Northern California counties of Butte, Glenn, Tehama, and Shasta. CHIP's

Rural Self-Help Program (RSH) has been in existence since 1981. The primary funding for this program comes from Rural Development, Section 532 Technical Assistance Grants and Section 502 Mortgage Loans. Since the inception of the Rural Self-Help Program, staff has received only anecdotal information about their clients' satisfaction with respect to housing quality and residential space plan design.

Based upon a thorough examination of the literature, it appears there is little published research that describes the rural self-help homeowner's satisfaction with housing quality and residential space plan design.

Purpose of the Study

Given the numerous rural, self-help homes that have been constructed over the years, a better understanding of the needs of low-income, rural self-help homeowners and their satisfaction with the interior of their housing is necessary.

The purpose of this research was to examine the satisfaction of CHIP's rural, self-help households whose homes were completed during the years 1991-1997 in the California counties of Butte, Glenn and Shasta with respect to housing quality and residential space plan design. A single, nonprofit program was selected so that program and house design, construction, and materials would remain consistent.

Recommendations will be made to agencies that regulate housing quality and space plan issues in their self-help programs. The post-occupancy survey of CHIP's Rural Self-Help Program's homes built between 1991-1997 provided the model for this evaluation.

Objectives of the Study

The objectives of this study were:

1. To determine what factor(s) influence rural self-help homeowners ' satisfaction with respect to housing quality and residential space plan design.
2. To determine what alterations or modifications (if any) might occur that would effect homeowner satisfaction with respect to housing quality and residential space plan design.

Research Questions

The following research questions were investigated.

1. Does overall opinion of storage areas, size of rooms, and location of rooms and features affect respondents' overall satisfaction with the interior of their housing?
2. How satisfied are households with the design of storage areas? Do specific aspects of storage space affect their overall opinion of storage space in their house?
3. How satisfied are households with the size of areas in their house? Do specific aspects of size of areas affect their overall opinion of size of rooms in their house?
4. How satisfied are households with the location of rooms and features in their house? Do specific aspects of location of rooms and features affect their overall opinion of location of rooms and features in their house?

5. How satisfied are households with the quality of the interior of their house? Do specific aspects of housing quality affect their overall housing satisfaction with the interior quality of their house?
6. Do specific housing characteristics such as number of bedrooms, number of bathrooms, and location of the subdivision, affect respondents' overall satisfaction with the interior of their house?
7. If households completed their own interior alterations or modifications, did the training learned during the self-help process assist them in performing the alterations/modifications?
8. Does the completion of alterations/modifications by households affect their overall housing satisfaction with the interior of the house?
9. Do specific demographic characteristics, such as ethnicity, age, or income, of the respondents affect overall housing satisfaction with the interior of their house?

Significance of the Study

The results of this research will be beneficial to perspective homeowners who participate in CHIP's Rural Self-Help Program, CHIP staff, and other housing organizations across the nation that develop Rural Development, Section 523 and 502 self-help housing. There are several reasons why this research is significant.

1. Rural self-help housing developers have only anecdotal information about the satisfaction of their clients with their housing. Information on rural self-help homeowners' satisfaction with housing quality and residential space plan design as well as mortgage history, foreclosure, and demographic information will provide affordable, rural, self-help

housing developers with a broader understanding of their clients' needs.

2. By understanding what affects the satisfaction or dissatisfaction of rural self-help homeowners, the processes, materials, and designs of self-help construction can be maintained or improved.
3. Finally, the development of a survey instrument to measure rural self-help clients' satisfaction with their housing quality and residential space plan design may be very beneficial to other housing developers who utilize the rural self-help method of construction. Furthermore, since self-help programs also exist in urban areas, this instrument (with necessary modifications) may be beneficial to urban self-help programs as well.

Theoretical Framework

The theoretical framework selected for this research was from Morris and Winter's (1978) Causal Model of Residential Satisfaction, more commonly known as Housing Adjustment Theory. The components of their housing satisfaction model include demographic and socioeconomic characteristics, normative housing deficits, and neighborhood satisfaction. More specifically, demographic and socioeconomic characteristics incorporate the following: stages of the family life cycle, income, occupation, education, and family structure. Normative housing deficits incorporate tenure, structure type, space, quality, expenditure, and neighborhood.

Using Morris and Winter's model, there are four ways to measure a household's satisfaction with their housing: (1) causes of satisfaction; (2) consequences of satisfaction; (3) intervening role of stress on families with housing deficits; and (4) the process of becoming dissatisfied or satisfied (Morris

& Winter, 1978). An analysis of a household's family, cultural, and community norms is important because these elements assist in the determination of whether or not a household is satisfied or dissatisfied (experiencing a housing deficit) with their housing. A household will probably be more satisfied with housing that *conforms* to their perceived norms and values.

Morris and Winter make a special point to note that when housing satisfaction of low-income families is analyzed, the measurement of housing satisfaction becomes more complex. For example, it would seem low-income households, given their financial constraints, would experience more housing adjustments or housing deficits than middle- or upper-income households that would lead to decreased housing satisfaction. However, they report " ... the propensity to adjust housing is reduced by the tendency for low-income families to be satisfied with less than optimum housing conditions" (Morris & Winter, 1978, p. 152).

Limitations

This research had the following limitations.

1. This study does not represent all rural self-help participants in California. CHIP rural, self-help participants who constructed their homes between the years 1991-1997 from the California counties of Butte, Glenn and Shasta were sent a survey. Generalizations should not be made about other rural, self-help participants unless it is determined that they possess similar characteristics such as residential space plan and building type, location, and program style and/or, they utilize the Rural Development funding sources which include Section 523 Technical Assistance Grants and Section 502 Mortgage Loans. Even though there are Urban Self-

Help participants in one or more of these counties, generalizations should not be made without careful analysis of the survey instrument and its applicability.

2. Because there were many Spanish-speaking clients, the survey instrument was printed both in English and Spanish. Although great care was taken with the translation from English to Spanish, there may be differences in interpretation of questions on the survey instrument between Spanish-speaking and English-speaking clients. Furthermore, there is an emerging Asian population (Hmong, Mien, Laos, etc.) participating in CHIP's Rural Self-Help Program. The survey instrument was not translated into all of these Asian languages due to so many different dialects and the cost of translation. In these cases, it is not unusual for young children of the households to become the translators for their parents. This could potentially cause the meaning to be lost in the translation and this may affect the responses of their parents on the survey.

Delimitations

The following delimitations were identified:

1. The measurement of housing satisfaction was limited to residential space plan design and housing quality. It was recognized that other factors, such as location and exterior design, can have an influence on housing satisfaction. The intent of this research was to investigate residential space plan design and housing quality and to make recommendations for improving these two areas based upon results.

2. The population consisted of rural, self-help participants in CHIP's Rural Development, Rural Self-Help Program.
3. This research was limited to CHIP's rural self-help homeowners whose homes were completed between the years 1991 and 1997. Although houses in this program were completed both before and after these years, it was determined that the number of houses completed during these years would be large enough to survey. An important factor was that the house plan sizes and designs were consistent during those years.
4. Translation of the English version of the survey was only provided in Spanish.

Definitions

Self-help: "The act or an instance of helping or improving oneself without assistance from others" (American Heritage Electronic Dictionary, 1992). For this study, "self-help" refers to the labor contributions of one or more participants in CHIP's Rural Development Program.

Sweat Equity: A measurement of the value of labor contributed by each self-help household that reduces the amount of the primary mortgage that must be obtained.

Housing Quality: The household's evaluation of their dwelling unit's physical condition, such as the heating and cooling system, plumbing, and wiring. Housing quality pertains to both moderate and severe deficits (exposed wiring, cracks and/or holes in the walls) and characteristics, such as the number of bedrooms, number of persons per room.

Housing Satisfaction: The level of fulfillment experienced by members of a household with their present housing situation (Morris and Winter, 1978).

Residential Space Plan: The contiguous residential layout of the residential unit that includes bedrooms, kitchen, living/dining/family areas, hallways, bathroom (s), laundry and pantry areas.

Household: One or more residents of a dwelling unit, regardless of biological or social relationship, martial status, or ownership.

Rural: Communities that do not exceed 10,000 persons or in certain instances, towns or cities with populations between 10,000 and 20,000 persons (United States Department of Agriculture Farmers Home Administration, 1987).

Chapter II

REVIEW OF LITERATURE

Very little research has been conducted on the satisfaction of low-income, rural self-help households related to housing quality and residential space design. The majority of the research on self-help builders focuses on mortgage histories. Therefore, this review of literature includes an overview of the historical development of self-help housing in the United States, Third World Countries, and selected nonprofit housing organizations in California. This discussion covers issues and characteristics associated with rural housing characteristics (homeownership, affordability, housing quality), the antecedents of self-help housing, as well as a current appraisal of its application in today's housing markets. Also presented is a discussion of housing satisfaction and design standards.

Rural Housing Characteristics

There are notable differences in housing trends in rural and urban areas. Therefore, a discussion of rural housing characteristics is presented which includes homeownership rates, housing affordability, and housing quality.

Rural Homeownership

In 1991, 81% of rural households owned their own homes, and 79% lived in single-family detached dwellings (Tin, 1993). It should be noted that the high homeownership rate of rural households can be attributed in part, to the fact that many rural homeowners own mobile homes. In 1990, 18.2% of the total rural housing units were mobile homes (Housing Assistance Council, 1994).

In contrast to urban households, rural households were more likely to own newer housing units, but they were also more likely to be low-income. Approximately 14% of all rural households were low-income and 1 of 9 (11%) of these households were low-income homeowners (Tin, 1993).

Housing Affordablity

Housing affordability can be defined as what people pay for housing in relationship to their income. This detrimental proportion has become the prominent housing problem in the United States (Koebel & Zappettini, 1993). Studies pertaining to housing affordability have found that low-income households are more likely to experience a housing cost burden than higher income households (Guadagno, 1992; Cook, Bruin & Winter, 1994).

A strong relationship exists between household income and housing affordability. Frequently, as household incomes decrease, the proportion of income spent on expenditures for housing costs increase (Guadagno, 1992; Schwenk, 1988; Bratt, Hartman & Meyerson, 1986). Total housing costs for homeowners include full principle and interest payments (mortgage), insurance, taxes, utilities, and maintenance. Weber, Williams, Routh and Hat (1993) conclude that after mortgage payments, rural households pay more than one-third of their income for heating and cooling costs compared to 20% paid by middle-income families.

In the special issue of Housing and Society titled "Barriers and Incentives to Housing in Rural Communities," Goss (1994) reported that there was a preeminent need in the 1990s for affordable housing for low- and moderate-income rural and urban households. Using information gathered from the S-194 Regional Housing Research Project "Barriers and Incentives to Affordable Housing", the author examined affordability measures associated with ownership and rental housing. In seven out the 18 rural communities examined, more than

20% of the households paid more than 30% of their income for housing. With respect to affordability, rental housing was more affordable than ownership (Goss, 1994).

The American dream of owning a single-family detached dwelling is unattainable for many low-income Americans. Generally, there are three main factors that prevent households from achieving homeownership status: insufficient gross annual income to qualify for the loan, too much debt, and no funds for the down payment and closing costs (Savage & Fronczek, 1993).

Although homeownership rates are higher in rural areas than in metropolitan and urban areas, rural households still face severe housing affordability problems. Data from the 1990 Census of Population and Housing indicates that over half of rural homeowners paid over 30% of their income for housing related costs. By the 1990s, affordability had become even more challenging, since the cost of housing had increased while median incomes had actually declined (Housing Assistance Council, 1996a).

Affordability can be affected by regional factors; costs burdens, median monthly rents, and owner costs can vary greatly. California ranked the highest in terms of percentage of rural housing cost burden at 31.9% (Housing Assistance Council, 1996a). In other words, California has the highest number of rural households living in units that are not affordable (spending greater than thirty percent of their income on housing related costs).

Housing Quality

Housing quality, as defined by Morris and Winter (1978), is the perceived desirable characteristics of a dwelling by its users or observers. When there are perceived housing quality deficits, the users or observers determine what housing quality characteristics in totality or in particular are undesirable.

Prior to the 1970s, deficiencies such as exposed electrical wiring (or lack of electricity); lack of running water, heating and cooling; faulty toilets; etc. were very characteristic of rural households' problems. Although the incidents of housing quality problems have significantly been reduced since the 1970s, the incidents that still exist are more prevalent in rural housing than in urban housing. According to an information brief by Housing Assistance Council (HAC) "Well over two million non-metro households live in physically deficient housing -- i.e. units with severe physical problems related to plumbing, heating, maintenance, hallways or kitchen" (Housing Assistance Council, 1996b, pg.1)

Low-income self-help homeowners can be greatly affected by housing quality deficiencies for several reasons: cost of repairs, health and safety issues, and loss of house value. Problems can occur in new construction units, as well as in units that were built ten years ago. Home maintenance can be a successful method of alleviating or reducing the incidents of housing quality deficiencies, but improper care can result in problems that are irreversible, costly, and hazardous to the occupants' health and safety.

Self-Help Housing

This section will define the term "self-help", discuss the history of self-help housing in the United States and other countries, provide background on Community Housing Improvement Program, Incorporated (CHIP) and discuss mortgage history and default rates associated with self-help homeowners.

Self-Help Archetypes Defined

The term "self-help" has several broad interpretations and has been applied loosely, thus at times it proves to be somewhat ambiguous. As defined in the American Heritage Dictionary, "self-help" means "The act or an instance of

helping or improving oneself without assistance from others" (American Heritage Electronic Dictionary, 1992). This definition implies the actions of only one individual versus the collective assistance of a group of persons, which is sometimes referred to as “mutual-help”. The following discussion attempts to qualify the term “self-help” (as applied to housing) and its broad meaning.

In the late 1960s, HUD funded several research projects to investigate new alternatives to low-income housing. In 1968, HUD funded a grant headed by John Turner and the Organization for Social and Technical Innovation " ... to study self-help in construction, rehabilitation, and maintenance of houses for low-income families and for methods of selecting, involving and directing such persons and families in self-help activities" (Harms, 1982, p. 28). The study's results included an evaluation of existing programs with respect to the project duration, cost, proportion of public to private funds in the projects, and the potential of the self-help method to meet the quotas of national housing goals (Harms, 1982).

Included in the report were definitions of the various archetypes of self-help labeled as *independent* self-help, *organized* self- and *mutual*-help, and *employed* self-help. A description of each archetype follows.

1. The **independent self-help** process refers to future homeowners who are not part of a program or group, but work independently to build and finance their own houses.
2. The **organized self- and mutual-help** process refers to future homeowners who work in conjunction with other households during all phases of construction for the benefit of themselves and others in the community. These groups are typically sponsored and supervised by an agency or organization that provides technical assistance. This assistance typically includes qualifying the households for loans and/or

subsidies, construction training, budget and homeownership education, and transfer of title to the new homeowners.

3. The **employed self-help** process refers to future homeowners who are employed by a sponsoring organization to construct their own home and they receive cash wages for their labor.

With respect to this research, the term “self-help” was used as a universal expression to describe sweat equity or labor contributions of one or more participants. If reference was made to an organization using one of the other terms discussed above, then the appropriate expression was stated.

History of Self-Help Housing in the United States

In many traditional societies, construction and repair of dwellings were completed with the aid of family members, the local community, or possibly local craftsmen, using local materials and building techniques (Harms, 1982). For decades, the self-help process has been a method used in house construction in the United States. Several examples of the self-help method of construction that occurred during the 18th and 19th centuries in America can be cited. These examples include, but are not limited to, information about The Homestead Act of 1862, "barn raising," and the oldest communal organization in the United States, the Shakers.

Many early pioneers who headed west took advantage of the Homestead Act of 1862. "Homesteading" allowed heads of households to stake a claim to up to 160 acres of land simply by living on it for five years and paying a fee of less than forty dollars (Mitchell, 1985). Further evidence of the self- or mutual-help method would be found by studying the farm or ranch communities that organized the traditional "barn raising." A "barn raising" represented the collective efforts of community members to build a single barn. Not only did it produce a building, but also a stronger sense of community was created. The

Shakers were a segregated, self-sustaining religious group that developed several small communities. Members of this religious group worked in conjunction with one another to develop their colonies. This included the construction of their community and living buildings.

This process of organizing group labor to erect a building(s) is the foundation of the self- or mutual-help method that was utilized in the United States beginning in the 1930s. This was during the Great Depression in the United States, and there were many unemployed workers. Some organizations saw self-help housing as a way to get people back to work. In 1933, one such organization, the County Relief Board of Westmoreland County, sponsored the first self-help program that paid the laborers for one-fourth of their time. By 1940, over 250 homes had been built using the self-help method (Harms, 1982).

Another organization that promoted the self-help method to encourage self-sufficiency was the American Friends Service Committee (AFSC). This Quaker group sponsored self-help activities in the United States as well as other countries. Like the County Relief Board of Westmoreland County, in the 1930s, AFSC supported unemployed miners and their families in Western Pennsylvania in a self-help endeavor. The Penn-Craft Self-Help Housing Project removed shanties and replaced them with 50 stone houses that included central heating and indoor plumbing. In the 1950s, AFSC with the assistance of Friends Neighborhood Guild oversaw the rehabilitation of a self-help project in Philadelphia. In the early 1960s, Bard McAllister, a AFSC board member, worked with farmworker households in Goshen, California and established the first rural self-help project that utilized Farmers Home Administration, Section 502 loans (Collings, 1996).

In 1946, the first United States self-help project sponsored by a nonprofit was begun. It was called "Flanner House Homes" in Indianapolis, Indiana. This education organization, in conjunction with the Indianapolis Redevelopment

Commission on Self-Help Housing, assisted black families who could not attain conventional credit or come up with the necessary down payment to buy a home. Over a fifteen-year period, 365 houses were built, and property located in a slum area with inadequate housing was redeveloped (Collings, 1996).

Habitat for Humanity International (HFHI), a Christian based, international organization, has been in existence since 1976. It serves low-income families through scatter lot housing development and rehabilitation of existing housing. The clients that HFHI serves are those who are living in inadequate shelter. HFHI's motto is "A decent house in a decent community for God's people in need" (Schwartz, Ferlauto, & Hoffman, 1988, p. 247). In order to qualify for HFHI's program, clients must be unable to attain conventional financing in the traditional housing market, must have annual household incomes between 30-50% of median income, be credit worthy, and must contribute the required sweat-equity hours.

HFHI finances its projects with the support of volunteers and donations rather than applying for governmental subsidy. Materials, skills, labor, and land are donated, thus, eliminating interest and finance charges. The family that is selected contributes to the building process through a set number of sweat equity hours. Through the cooperation and donation of materials and sweat equity of community members and the selected family, the HFHI house is constructed (Schwartz, Ferlauto, & Hoffman, 1988). HFHI has constructed, rehabilitated and repaired more than 90,000 houses in 2,000 communities worldwide (Habitat for Humanity, 2000).

In California alone, there are approximately twelve nonprofit organizations that have self-help programs. The largest nonprofit in California is Self-Help Enterprises, Inc. (SHE) located in Visalia, California. Incorporated on February 5, 1965, SHE is an outgrowth of the 1963 American Friends Service Committee's farm labor housing project. Today, it represents the largest self-help program in

the continental United States. Since 1965, SHE has completed over 4,364 units of rural self-help housing and 429 units of urban self-help housing. It has assisted a total of more than 24,976 participants in the process (Self-Help Enterprises, November, New Homes Family Progress Report, October, 2000).

SHE's statement of purpose is to improve the living conditions of low-income households in the San Joaquin Valley by providing them with the necessary tools to help themselves. This organization has grown to serve low-income households in eight counties of the San Joaquin Valley: Stanislaus, Merced, Fresno, Kings, Kern, Tulare, Madera, and Mariposa.

Housing in Other Countries

The use of self-help construction methods have not been limited to the United States, but have been successfully utilized by large government housing programs in Greece, Sweden, Canada, Venezuela, Columbia, Africa, and Puerto Rico. Research conducted by Hardoy and Satterthwaite (1981) on living conditions and housing trends, discovered examples of self-help construction in seventeen Third World nations.

The introduction of self-help methods of construction was, in part, a response to the poor housing conditions in those developing countries. Squatter settlements, as they are often referred to, typically house the poorest of the poor. The housing, usually shacks made out of various scavenged or purchased materials, characteristically lacks safe drinking water, indoor plumbing and electricity, proper planning, services, and what is most important, ownership through title. There are various names for these settlements, depending on their location such as *gecekondus* in Turkey, *favelas* in Brazil, *bustecs* in Calcutta, and *pueblos jóvenes* in Peru (Ward, 1982).

Millard and Linda Fuller, founders of Habitat for Humanity International (HFHI), began their first self-help housing project in Mbandaka, Zaire in 1973.

Their goal was to develop affordable and adequate housing units to accommodate 2,000 people. That goal was achieved in three years. Since that time, HFHI housing has been constructed in Africa, Asia, the Caribbean, Latin America, and the United States (Fuller & Scott, 1980).

In the Canadian Province of Nova Scotia, St. Francis Xavier University sponsored a cooperative for coal miners in 1938. It was the first project noted for developing and using pre-construction training techniques. By 1967, there were over 2,000 self-help housing units in the area (Collings, 1996).

United States Supported Rural Self-Help Programs

In 1935, the Farmers Home Administration, was created to function as a federal agency that would disperse loans and grants to rural families that lived on farm land and had suffered as a result of the Great Depression. Originally, this program targeted farm families, but in 1949, Congress expanded it to include nonfarm families in rural areas. As a result of the Rural Development program, many rural communities benefited and experienced safe, decent and affordable conditions in both housing and community facilities.

Sixty-six years later, the Farmers Home Administration was renamed Rural Development, but still makes direct loans and grants as well as guaranteeing loans by private lenders. Rural Development is able to provide loans as a result of money collected from previous direct loans or from investments in government securities from private entities. Rural Development has a portfolio of loans worth $63 billion dollars. Since the inception of the program, the Single Family Housing Program alone is worth $855.7 million dollars (Farmers Home Administration, 1994).

Section 502 mortgages The self-help homeownership program, known as Section 502, is " ... designed to provide direct loans to homebuyers in rural areas for the purchase or rehabilitation of an existing home or the construction or

purchase of a new home" (DiPasquale, 1990, p. 175). In order to qualify for a Rural Development guaranteed loan, each participating household must have a good credit and rental history, job stability (repayment ability), and meet the necessary income guidelines. Unlike traditional housing markets, no down payment is required and the repayment period is thirty-three years (in some instances, thirty-eight years). Interest is determined by the amount of total annual household income. To assist very-low income households with achieving homeownership, the mortgage interest rate can be as low as one percent.

Households that qualify pay 20% of their gross income to the monthly mortgage payment that includes full principle and interest, property taxes, and homeowner's insurance. The Section 502 subsidy is equivalent to the difference between the actual mortgage payment and 20% of the household's total gross income.

The Section 502 Program continues to provide a subsidy to households only as long as needed. Re-certification of household income is verified every year by the lender. If there has been an increase in the household income, the amount of subsidy is reduced, and in the reversed case, if the annual gross income has decreased, the amount of subsidy increases.

Section 523 technical assistance grants Rural Development funding provides specific technical assistance grant funds for mutual self-help housing programs that utilize the Section 502 Mortgage Loan funds. These grants pay for the cost associated with the development, coordination and administration of building mutual self-help housing units in rural areas. Eligible activities include: recruiting eligible families; holding training meetings; developing approved floor plans; assisting families with the selection of building sites, subcontractors and supplies; construction training; construction supervision; and supervising Section 502 loans.

Rural Development Self-Help Program Rural Development has a rural, self-help housing program which utilizes Section 502 funds and Section 523 Technical Assistance Grants. Currently, there are over 75 active Section 523 grantees distributed throughout the United States. Since 1971, over 23,000 homes have been built utilizing Section 502 funding (French, 1996).

Self-help construction consists of the building of modest but adequate new construction, single family dwellings using the "sweat equity" method of construction. The number of hours per week that a household must contribute in sweat equity hours is determined by the difference between the appraisal price of the house and the loan amount, including construction and land costs. This method reduces the cost of building that, in turn, reduces the loan amount. This makes the houses more affordable. Furthermore, the owners have gained equity in their home equivalent to the hours contributed in the sweat equity process.

Besides the monetary benefits of "sweat equity," the self-help process also empowers individuals and develops communities. Throughout the construction process, clients are educated about how to properly use manual and power tools. These are vital skills that they will retain as homeowners in order to complete general house maintenance repairs as well as larger projects, such as room or patio additions. Training provides the owners with an option to do the work themselves or to hire a professional. By continuing to use the "sweat equity" method, the costs of maintenance or remodeling to the homeowners is reduced, and a greater sense of personal investment is gained.

French (1996) noted in his article summarizing mutual self-help activities associated with Section 502 funds over the past twenty-five years that besides building a dwelling, the self-help home building activity also builds confidence, hope, and desire for higher attainment in education. Furthermore, he states that when he talked with self-help clients, he found they "All readily admit that building

and moving into their self-help homes was a pivotal point in their lives" (French, 1996, p. 4).

Community Housing Improvement Program, Incorporated (CHIP)

Today, there are many nonprofit housing programs in the United States which provide housing for very low- to moderate-income households using the self-help method of construction. These programs serve both rural and urban communities. A brief discussion of Community Housing Improvement Program, Incorporated (CHIP) which was the focus of this research follows.

Incorporated in 1973, Community Housing Improvement Program, Inc. (CHIP) is the largest nonprofit, self-help housing program in northern California. CHIP's primary mission is to "improve and expand housing for low-income individuals and families ... " (Community Housing Improvement Program, Inc., April, 1995**,** p. 3). To accomplish this, CHIP has five individual departments that specialize in different areas of housing, credit counseling and land development. CHIP's two single family departments are the Urban Self-Help and Rural Self-Help Programs.

CHIP's Rural Self-Help Program was begun in 1981 and was the first single family, self-help home construction program initiated at CHIP. A combination of Rural Development Section 502 Mortgage financing, Section 523 Technical Assistance Grant, and sweat-equity from the participants is the basis used to provide newly constructed, energy efficient homes to low- and very low-income households. To date, CHIP has secured $7,107,150 in Section 532 Technical Assistance grants and $43,070,224 in Section 502 Mortgage financing for their Rural Self-Help clients (Community Housing Improvement Program, Inc., 2000).

Additional funding sources supplement the Section 502 and Section 523 funding, such as, Farmworker Housing Grant, Home Investment Partnership

Program (HOME), Federal Home Loan Bank, Affordable Housing Program, Housing Assistance Council, as well as other private, state and federal funding.

To date, the Rural Self-Help Program has completed 682 homes, and 143 units are in the development stage. Housing units have been built in the rural areas of Butte, Glenn, Shasta, and Tehama Counties in towns that do not exceed 10,000 in population. Scatter sites or subdivisions have been built in Oroville, Cottonwood, Biggs, Gridley, Anderson, Hamilton City, Nord, Orland, Red Bluff and Willows.

Mortgage Histories and Default Rates

Recent literature that pertains to self-help housing has targeted mortgage histories and default rates as a way to determine the success of the programs (Quercia, McCarthy & Stegman, 1995; Waterman, 1997; Self-Help Enterprises, 1998).

Self-Help Enterprises (SHE) published a report in January of 1998 titled "The Mutual Self-Help Homeownership Experience: 1965-1996." This report used a sample of the nearly 4,500 self-help participants who had completed homes through their program over the last 32 years. The results of this study clearly emphasize the long-term stability of homeownership. As noted, " … 85% of self-help homebuilders owned their homes for longer than 7 years, 79% for longer than ten years, 71% longer than fifteen years, and 68% longer than 20 years" (SHE, 1998, p.5). Furthermore, over the 32 year period, only 5% (56 total) of the SHE homebuilders experienced foreclosure on their property. Between 1965 and 1975, the foreclosure rate was 9%, and since 1976, the foreclosure rate has dropped to 3% (SHE, 1998).

Quercia, McCarthy and Stegman (1995) examined factors related to mortgage default rates among rural, low-income borrowers who were recipients of Rural Development, Section 502 mortgage funds. The purpose of their study

was to better understand the default behavior in relation to factors such as crisis events, equity and ratios of mortgage payments to income. A primary factor that contributed to minimizing default rates included the Section 502 interest credit. The results of this study identified that overall, low-income borrowers have acceptable repayment performance. In addition, the ratio between a borrower's mortgage payment to their income and crisis events appear to have a strong influence on default rates.

Design Standards

Design guidelines have been created and are used by the housing industry to benefit the general health, safety, and well-being of people, as well as enhancing the livability of their housing environment. Housing that is funded in whole or in part by the United States Department of Agriculture (USDA), such as Section 502 and 523 funding, have prescribed design standard requirements that must be followed and implemented when housing is developed with use of these funds. Developers may be asked to adopt one or more design and construction codes, for example: Uniform Building Code (UBC), National Electric Code (NEC), Uniform Federal Accessibility Standards (UFAS), or Minimum Property Standards (MPS). This is by no means an exhaustive list.

Historical Overview of Design Standards and Livability

Government standards and consumer guides make recommendations as to which features will enhance the livability of a dwelling unit. Many housing-related research studies have been conducted on housing design and space standards for specific household activities. Consumer guidelines such as MPS or Design Construction Standards: Housing have been instrumental in improving housing quality and design.

Beamish's (1983) dissertation provides a valuable historical overview of the design standards that have had an influence on the development of building codes and space requirements. The Minimum Property Standards (MPS), developed in conjunction with the National Housing Act of 1934, strengthened the likelihood that FHA insured mortgages were an " ... economically sound security" (Beamish, 1983, p. 28). Furthermore, due to the establishment of the Housing and Urban Development Act of 1968, new standards were drafted called Design and Construction Standards: Housing. The intent of these new standards was two-fold: either to decrease the cost of developing housing or to improve the quality of the housing being developed. The MPS were revised in 1973 into three volumes (single family, multi-family, and care-type facilities). A Manual of Acceptable Practices (MAP) was a document meant to be used to interpret the three MPS volumes (Beamish, 1983).

Beamish and Day (1988) provide an extensive overview of the livability of housing design and criteria for evaluation. Using a specific house plan, 32 housing professionals and 11 residential households assessed the livability of an FmHA, Section 502 Program house plan (#H5-41) and whether the design was compatible to U.S. Federal Housing Administration's Minimum Property Standards. Livability was defined " ... as the capacity of a residential space to meet the daily living needs of a family or household through its design, arrangement and construction" (Beamish & Day, 1988, p.240).

The housing professionals rated the livability and features of the house plan on a lower scale than the residents; residents appeared to be satisfied with the dwelling unit and perceived fewer housing problems than the housing professionals. Unlike the housing professionals, residents did not report dissatisfaction when design features did not fully comply with the MPS. Beamish and Day (1988) concluded that housing professionals may have a higher

expectation for housing livability due to their knowledge of design standards and guidelines.

Rural Development Design Guidelines

Since 1990, many of the original design standards implemented by Rural Development (formerly FmHA) have changed. In the 1990 FmHA Bulletin No. 3 titled FmHA Design and Construction: Recommendations, Requirements and Policies, revisions and changes to FmHA Instructions 1924-A, 1944-A, 1944-E, 1924-C and 1944-D were included. The major changes or revisions regarding interior features included: "allowable maximum areas for housing units", "deletion of the M.P.S., except for the M.A.P. 4930.1", and the "adoption of the Uniform Building Code (UBC) and National Electric Code (NEC), CABO 1 and 2 Family Dwelling Code, Uniform Federal Accessibility Standards (UFAS), and the Fair Housing Amendments Act of 1988" (United States Department of Agriculture, 1990, p. 1).

Interior Feature Guidelines - FmHA Bulletin No. 3

FmHA Bulletin No. 3 established the new guidelines that were required for single family new construction projects. The areas of discussion pertaining to this study are: Cost Containment Policies, Energy Conservation, Light and Ventilation, Water Heaters, Shower Heads, Design Criteria, Interior Paints, Ceiling Fixtures, and Carpet. A brief discussion of these items as they pertain to this study follows.

1. Cost Containment: Interior feature items that cannot be financed with RD funds include: elaborate ornamental decorations, excessive cabinet work, fireplaces, excessive storage space, trash compactors, dishwashers, costly kitchen appliances, and sliding glass doors.

2. Energy Conservation: Solar energy overhangs (if practical) must be provided to keep the summer sun from the interior spaces of the house; energy efficient appliances must be specified; bathrooms and kitchen must have fluorescent lights; foam gaskets must be installed behind electric outlet covers, and weather stripping installed on all exterior doors of heated spaces.
3. Lighting and Ventilation: Bathrooms must have a window area of no less than 1/20 of the floor area (openable and minimum 1.5 square feet) or an exhaust fan directly vented to the outside and capable of five complete air changes/hour.
4. Water Heater: Individual, minimum R-16 internal insulation or minimum R-12 insulation jacket.
5. Shower Heads: Maximum flow of 2.75 gallons of water/ minute
6. Design Criteria:
    a. Building Shape: Simple in shape and design; excessive wall length should be avoided.
    b. 2 Foot Overhang: Minimum length to provide appearance, weather, and shading protection.
    c. Kitchen Hoods: Vented to outside.
    d. Secondary Exterior Door to Side Yard: Provided from kitchen or dining area directly or through garage.
    e. Sleeping Rooms: Minimum of two ways of egress (doors and windows); in primary bedroom, minimum of 10 feet uninterrupted wall space (can include window, 44 inches or more above floor).
7. Interior Paint: Washable acrylic latex, low-luster enamel or semi-gloss alkyd enamel paints.
6. Ceiling Fixtures: Provide in all bedrooms.

9. Carpet: Must be certified by one of the following (ETl, MEA, ALI, ACT). (United States Department of Agriculture, 1990)

Single Family Project Criteria

FmHA Bulletin No. 3 further explains other design restrictions; a summary of those items which pertain to this study include: maximum size of areas, unit configurations in subdivisions, and heating and cooling systems.

1. Maximum Size Areas: total square footage of dwelling unit for single family housing which is calculated by using exterior wall dimensions.

The maximum size guidelines are as follows:

# of Bedrooms	# of Bathrooms	Sq. Ft.	# of Occupants
2	1	864	1
3	1	1008	2-3
3	1.5	1104	4-5
4	2	1248	6*

*if justified, larger families may add bedrooms not to exceed 120 sq. feet.

2. Subdivision Unit Configurations: unless market analysis disagrees, a mix of two, three and four bedroom units should be created in each subdivision. Stub outs for future tubs or showers should not be provided.
3. Heating and Cooling Systems: if natural gas is available, gas must service the heating unit; central air conditioning units are authorized if summer temperatures are 95 degrees or more; whole house fans can be authorized as well (United States Department of Agriculture, 1990).

Furthermore, new construction, single family dwellings must exhibit "modest" characteristics. RD funds cannot be used to finance items that are excessive in nature such as excessive ornamental decoration or cabinet work. Requirements that ensure that a dwelling is modest include:

1. Being modest for the area (purchase price cannot exceed other comparable modest housing in the area);
2. No in-ground pool;
3. Cannot exceed the cost of the Section 203(b) limit created by the National Housing Act;
4. Cannot be designed for income producing purposes; and
5. The cost of materials or amenities cannot be excessive.

(7 CFR 3550, Appendix 1; Subpart B Dwelling requirements)

Housing Satisfaction

Housing satisfaction is defined as "A state of the level of contentment with current housing conditions ... " that fall along a continuum of satisfied to dissatisfied (Morris & Winter, 1978, p. 80). Deficits may be in the form of inadequate space (lack of storage and crowding), poor housing conditions (leaking roof, no air conditioning), neighborhood location, and the like.
The level of satisfaction is dependent upon the user's perceived deficits in the form of cultural, community, or household norms. When the level of satisfaction is low, there is a propensity for the household to engage in housing adjustment behavior (Morris & Winter, 1978).

Previous research has demonstrated that a household's housing satisfaction is a major factor affecting the feeling of general well-being (Campbell, Converse, & Rogers, 1976; White & Schollaert, 1993) and an indicator of quality of life (Wish, 1986). With this understanding, housing becomes a very personal reflection of ones personality and, thus a strong relationship exists between one's environment and satisfaction. Satisfaction or dissatisfaction can be measured both subjectively and objectively. According to Wish (1986), objective components refer to environmental aspects, such as number of bedrooms,

whereas subjective components refer to psychological aspects, such as one's satisfaction with the layout of their kitchen. A homeowner's satisfaction or dissatisfaction is influenced by their personal experiences and expectations (Crull, 1994).

Although housing research has established that housing satisfaction is higher for homeowners than renters (Morris & Winters, 1987; Rent & Rent, 1978; White & Schollaert, 1993) there still can be problems associated with homeownership, such as housing quality, size of dwelling, maintenance, and mobility. Therefore, the implementation of post-occupancy evaluations by developers of affordable housing become a vital tool to measure how well the built environment supports the satisfaction of its occupants.

There are many predictors of housing satisfaction. Several housing research studies have focused on residential housing satisfaction particularly related to residential mobility (Baillie, 1990; Morris, Crull, & Winter, 1976), housing quality (Memken & Canabal, 1994), and neighborhood satisfaction (Combs & Vrbka, 1993). Also of importance are predictors of housing satisfaction for special populations such as elderly, single parents, and minorities (Baillie & Peart, 1992; Crull, 1994). For the purposes of this study, an examination of the literature with respect to satisfaction as it applies to housing quality and design features of a house will be discussed.

Housing Quality

Although the incidents of housing quality problems have been significantly reduced since the 1970s, the ones that still exist are more prevalent in rural housing than in urban housing (Housing Assistance Council, 1994). According to Schwartz, Ferlauto, and Hoffman (1988), a disproportionate amount of rural Americans lived in substandard housing in 1980. More than two million units located in the Farmers' Home Administration service areas were identified as

substandard. Furthermore, low-income households are more prone to suffer from housing deficiencies than higher income households (Apgar, 1989).

The Department of Housing and Urban Development (HUD) has defined housing quality as inadequate or substandard dwellings. These dwellings may exhibit as many as ten potential deficiencies in the following categories: physical structure, common area fixtures, plumbing, kitchen facilities, heating and electrical systems (Zhu & Sheldon, 1996). Factors that can influence housing quality include income, tenure, affordability, household composition, and location (Shelton & Sillah, 1996).

One of the most common housing quality deficiencies is overcrowding. Overcrowding is defined as having more than 1.01 persons per room (Bratt, Hartman, & Meyerson, 1986). In the United States, California was ranked fifth overall for the highest percentage (7.4%) of rural housing units that were overcrowded (Housing Assistance Council, 1994). Overcrowding becomes a very real issue, especially for large families and extended family households. A better predictor of overcrowding is the number of bedrooms in relation to the number of household members (Morris and Winter, 1978).

Housing researchers have demonstrated that housing quality has been long associated as a strong predictor of housing satisfaction. Ha and Weber (1991) found housing satisfaction to be greatly influenced by housing quality. Crull (1994) found that " ... inadequate dwelling was the most powerful direct housing problem determinant of housing satisfaction" (p. 49).

Improvements, Repairs, and Maintenance

Income and housing affordability also play an important role in the homeowner's ability to make improvements to, repair, and/or maintain their housing unit. Mendelsohn (1977) found that there was a direct relationship between income level and a homeowner's making improvements and the amount

they spent. The higher the income, the greater the occurrence of improvements and the more the homeowners spent on improvements. Furthermore, younger, low-income householders were more likely to do their own improvements.

In a study on housing characteristics and home remodeling projects, Parrott (1988) concluded that Do-It-Yourself (DIY) activities were more likely to be undertaken by households with lower-incomes. In a later study, Parrott (1993) further concludes that the DIY process " ... influences housing attitudes and satisfaction."

Design Features

In the development of housing designs, it is important to understand the housing needs of the target market (Chambliss, 1997; Wentling, 1990). Household composition, economic status, household size, and age of occupants are important components to consider when designing residential space plans. Design features should be flexible (use of space, furniture arrangement) and reflect the needs of both private and shared activities.

Chambliss (1997) stresses that in addition to designing spaces which reflect the specific needs of users based upon needs assessments, there are other factors to consider. For example, it is important to choose: low maintenance materials and finishes; energy efficient materials and products; designs that allow for a variety of furniture arrangement, and to incorporate both private and communal areas within a unit. He stresses that better designed housing increases the chances of residential comfort and satisfaction of the users.

Chambliss' (1997) discusses the merits of good design when planning an affordable housing project. He emphasizes that attention to quality can produce " ... lower turnover rate, higher occupancy ... " and provide " ... a better return to the owners and their financial partners" (Chambliss, 1997, p. 1). Developers,

financial investors and ultimately the users of affordable housing can benefit from quality design. Previous research has established that certain design features, such as adequate storage, room size, number of bedrooms, size of dwelling, and quantity of amenities (dishwasher, washer and dryer) influence occupants' housing satisfaction (Baille, 1990; Baille & Peart, 1992; Beamish, 1983; Kinsey & Lane, 1983; Cook, Bruin & Winter, 1994).

Friedman and Pantelopoulos (1996) investigated the spatial needs of twenty-five Montreal households who owned wartime homes (no larger than 1,000 square feet). Their investigation included interviews and field studies that pertain to space management and changes to the layout of the original plans. The analysis was divided into the following spatial areas: kitchen, bedrooms, living room, bathroom, storage, and windows and stairs. Two findings are noteworthy. First, homeowners were willing to sacrifice living in a smaller house when they realized the potential for the layout to be modified when the homeowner's financial situation improved. Second, first-time homeowners were more likely to accept a smaller house because they anticipated that this would not be the only house that they owned.

Measuring Housing Satisfaction

The previous sections were devoted to a discussion of predictors of housing satisfaction in housing related-research. There are various ways with which to measure the housing satisfaction of rental and homeownership residents. A discussion of how some housing research studies have measured housing satisfaction follows.

One of the most common ways that researchers measure housing satisfaction is through the use of a one-to-ten point or one-to-five point Likert scale where usually “1” represents the lowest score and “5” or “10” represent the highest score. Questions can be designed for a singular analysis, such as,

"What is your opinion of your housing quality?". Questions can also be structured categorically, for example, a resident's level of satisfaction with storage areas in various locations (bedrooms, kitchen, front entry, and bathroom).

Beamish (1983) developed and tested two instruments intended to measure the livability of single-family houses. One instrument was called the House Plan Evaluation Checklist (HPEC) and the other instrument was called the Housing Satisfaction Scale (HSS). The HPEC was used by housing professionals to evaluate the livability of a house plan. They would evaluate the house plan using the following ratings : (0) Does not have, (1) Poor, (2) Fair, (3) Good, and (4) Excellent. The HSS was used by residents to evaluate their satisfaction with specific features of their house. Each item had a scale that rated importance (1-Very Unimportant to 6-Very Important) and satisfaction (1-Very dissatisfied to 6-Very Satisfied) (Beamish, 1983).

Common statistical tests that are used to measure housing satisfaction range from very simple mean score calculations (Friedman & Panelopoulos, 1996) to more complicated multiple regression analysis (Ukoha, 1995). Other statistical analysis includes the use of one or more of these methods: chi-square, ANOVA, path analysis, and correlation.

Summary

For many decades, Americans have used the self-help method of construction for repair and construction of new buildings. Examples of self-help construction can be found within Shaker communities, barn raising activities in farm and ranch communities, and by pioneers who participated in the Homestead Act of 1862. Even today, self- or mutual-help construction is still being practiced as evidenced by many nonprofit housing organizations such as Habitat for

Humanity, Self-Help Enterprises, and Community Housing Improvement Program, Incorporated.

Self-help activities have not been limited to the United States, but have been successfully implemented by large government housing programs or nonprofit sponsors, in countries such as Greece, Sweden, Canada, and Puerto Rico. Developing countries, many with poor housing conditions, rely heavily on self-help means of construction.

The United States Department of Agriculture, Rural Development, formally Farmers Home Administration, was founded in 1935. Rural Development has been providing Section 502 direct loans to self-help homebuyers in rural communities since 1971. Like many other nonprofits in the United States, CHIP has been using Section 502 loans to develop affordable, single family dwellings in rural areas of California since 1982.

Low-income rural households experience many housing related challenges including housing affordability and housing quality. Low-income rural households typically pay a large proportion of their monthly income towards housing and therefore experience greater housing cost burdens than higher income households. Furthermore, many rural households live in physically substandard housing with severe problems such as plumbing, electrical, or deficiencies caused by lack of maintenance.

Households' housing satisfaction is a major determinant of one's general well-being (Campbell, Converse, & Rogers, 1976; White & Schollaert, 1993) and an indicator of quality of life (Wish, 1986). Housing research studies have shown that there are many predictors of housing satisfaction, including housing quality (overcrowding, physical deficiencies); improvements, repairs, and maintenance (Do-It-Yourself activities); and design features (adequate storage, room size, quantity of amenities).

Design standards and livability of housing design have been created to benefit the general health, safety and well-being of people, as well as enhancing the livability of their housing environment.

CHAPTER III

BACKGROUND and METHODOLOGY

The purpose of this research was to study the housing satisfaction of Community Housing Improvement Program, Incorporated (CHIP) low-income, rural, self-help households in the California counties of Butte, Glenn, and Shasta with respect to housing quality and residential space plan design. Specific aspects related to housing quality included: durability and maintenance of building materials; appliances (range, heating and cooling units); plumbing and electrical; and furnishings (cabinet, flooring, countertops). Specific aspects related to residential space plan design included: storage areas, size of areas, and location of rooms and features.

Chapter III describes the methodology for this research, including the population, the sample, focus group procedures and results, the survey instrument, and the procedure for its distribution and collection. This chapter also provides general background information on CHIP and the subdivisions related to this research.

The Setting

CHIP is the largest private, nonprofit developer of affordable housing in Northern California. This organization is comprised of five different departments: Multi-Family Housing, Self-Help Program, Land Development, Housing and Credit Counseling, and Property Management.

The Rural Self-Help program was the first single-family, new construction program developed at CHIP. Since 1981, Rural Development's Self-Help

Housing Department has built 682 rural self-help houses in the counties of Butte, Glenn, Tehama and Shasta. Houses completed between the years 1991 and 1997 were built only in the counties of Butte, Glenn and Shasta. Given that each county has its own particular attributes, a brief discussion of Butte, Glenn, and Shasta County's general location and geographic characteristics is warranted.

Butte County

Butte County, California, is located approximately midway between the cities of Sacramento and Redding. The county seat is in Oroville, and the two other primary cities are Chico and Paradise. The Wiggins Subdivision (31 units), located in Gridley, is the only subdivision in this study that is located in Butte County.

The population of Butte County exceeds 171,000 persons and the geographical size of Butte County is roughly over one million acres of land. This county is noted for its agricultural industry that includes products, such as rice, almonds, olives, citrus and walnuts. The geographical characteristics of fertile valley soil, the Sacramento River and its tributaries, foothills, and mountain ranges, account for its vast and successful agricultural economy (California Appraisals, January 26,1993).

Glenn County

Glenn County, California, is located approximately midway between the cities of Redding and Sacramento. The county seat is in Willows and the rural towns of Willows and Orland are the primary population centers for the county. The subdivisions in this study which are located in Glenn County are: Hoff, Units 1 & 2 (38 units), Western Elm (21 units), Hoff, Units 3 &4 (56 units), John F. Kennedy (46 units), and Greenwood Estates (40 units).

Glenn County has a very low population density of approximately 23,500 persons located on a relatively a large amount of land. Like Butte County, Glenn County's economy is based primarily on agriculture and the area shares similar geographical characteristics of fertile valley soil surrounded by foothills and mountains. Also, approximately one-fourth of Glenn County is in the Mendocino National Forest (California Appraisals, September 17, 1990).

Shasta County

Shasta County, California is located in the most northern section of the Sacramento Valley and is situated centrally between the Pacific Ocean and the Nevada border. The County seat is located in Redding. Shasta County, which encompasses approximately 6,300 square miles, includes the incorporated cities of Redding, Anderson and Shasta Lake. The subdivisions pertaining to this study which are located in Shasta County are: Spring Hill (6 units); Brophy (11 units); Chadwick Estates (27 units); and Cody (27 units).

Shasta County's terrain is mostly mountainous or hilly; Mount Shasta is considered one of the tallest peaks in the United States. Because of the predominance of this type of terrain, most of the economic activity generated in this area comes from working ranches, a large timber industry, and tourism from such attractions as Lake Shasta and Lassen National Volcanic Park (California Appraisals, April 28, 1997).

Subdivisions

The first rural self-help homes completed by CHIP were located in Oroville. A total of 11 homes were built on scattered lots in 1981. Because of this experience, it was determined that scatter lot development was not cost effective. In 1988, the last scattered lot project was completed. Since that time, the Land

Development staff has focused on subdivision purchases (Community Housing Improvement Program, Inc., 1993).

CHIP's Land Development Department, comprised of the Corporate Land Developer and the Land Development Specialist, play a vital role in the development of Rural Self-Help Subdivisions. Identification of raw land or finished lots requires years of advanced planning so that lots can be available and ready for the timing of the next Rural Self-Help project.

The land development staffs' responsibilities, depending upon the nature of the project, may include some or all of these activities: overseeing and acquiring land or finished lots; securing pre-development loans; requesting and reviewing environmental and soils reports; archeological surveys; acquiring all necessary approvals at the local, state, and federal levels; surveying and engineering; working with lenders; the environmental clearance process; and site improvements.

A primary goal of the Rural Self-Help Program is to build decent, affordable housing for low- and very low-income rural residents. Therefore, the cost of each finished lot is a critical consideration when determining the affordability of the finished product. Land development staff works diligently to provide finished lots in good locations with proper city hook-ups (water, sewer, electric). During the process, they must consider project costs.

The Land Development Department provided the Rural Self-Help Program with 303 finished lots on which the houses related to this survey were constructed. The number of units per site ranged from as few as six homes, to subdivisions with as many as 56 homes. Between 1991 and 1997, there were a total of nine subdivisions (one subdivision, Hoff, contained two phases of development). Between 1991 and 1997, 303 homes were built. This made 30.4 the average number of homes per subdivision.

Structure Types

The houses under investigation that were constructed between 1991 and 1997 were one-story, single family detached dwellings. Of the 303 houses, 18 were two bedroom, 212 were three bedroom, 66 were four bedroom and seven were five bedroom (see Appendix A). The number of bathrooms varied depending on the number of bedrooms and household income.

Methodology

The purpose of this research was to examine the satisfaction of Rural Self-Help households with respect to housing quality and residential space plan design. This research was conducted in two phases. In Phase I, focus groups were conducted to help the researcher identify issues and questions that would be addressed in a survey of program participants. In Phase II, a survey of residents was conducted as part of a Post-Occupancy Evaluation.

Phase I: Focus Groups

Focus groups have become a popular method for collecting qualitative data and developing survey instruments (Morgan, 1993). Focus group participants can provide experiences, perceptions, attitudes, perspectives, and opinions that " ... can yield valuable insights not available from other sources" (Morgan, 1993, p. 44).

Proper focus group design is imperative and there are many factors to consider when focus group methodology is employed, including number of participants, location, number of sessions, questions, and group characteristics. Given this preface, the recommendations of Morgan (1993) and Stewart and Shamdasani (1990) were used in the design of focus groups for this research.

The results of the focus groups were useful in the development of the final survey instrument. A discussion of the procedures and results follows.

Procedures The Rural Self-Help Program maintains a data base on its clients. With the approval of CHIP's Executive Director and Self-Help Program Manager, access to the client files was allowed. Throughout the process, confidentiality of the files was maintained.

Using the client files, a data base of all 303 households was created which included the homeowner's name, address, phone number, household size, subdivision, house plan, and number of bedrooms. Household information was organized first by subdivision, second by region, and last by number of bedrooms.

The homeowners are a homogenous group who share common characteristics such as income, self-help builders, rural residents, similar communities and house plan designs, and all are first-time homeowners. Based upon the recommendations by Morgan (1993) and Stewart and Shamdasani (1990) regarding homogeneous groups, only two focus group sessions were deemed necessary. The two groups were formed based upon location. Focus Group #1 consisted of homeowners from the CHIP subdivisions in Willows, Gridley, and Orland and focus Group #2 consisted of homeowners from the CHIP subdivision in Cottonwood.

Choosing the location where a focus group is to convene is critical. The location should be a familiar place and easy to find (Stewart & Shamdasani; 1990) and transportation difficulties must be considered (Morgan; 1993). Locations were sought with easy access and rooms that were comfortable, private and intimate. Chico, CA was determined to be the best location for homeowners from Gridley (Butte County) and Willows and Orland (Glenn County). Since shopping centers are a favored location (Stewart & Shamdasani;

1990) the community room in the North Valley Plaza Mall was selected for focus Group #1.

Focus Group # 2 was from Cottonwood (Shasta County) which is approximately a one-hour drive from Chico, CA. The Anderson Community Center was selected because it was centrally located to the Anderson and Cottonwood subdivisions; the community center is located in the City of Anderson's Administration Building and was familiar to all those who agreed to participate.

Because there were 2, 3, 4, & 5 bedroom house sizes, the focus group selection was designed to increase the probability of a cross section of owners of each house size. Stewart & Shamdasani (1990) suggest that most focus groups consist of 6-12 persons. Random phone calls were used to secure at least two households from the 2, 3,4 & 5 bedroom plans for a total of eight households. Households were grouped into region #1 or region #2 and then grouped into house plan size.

A random number table was used to determine which households to contact. A research assistant who is fluent in both English and Spanish was employed to contact the homeowners. A bilingual assistant was deemed important because many of CHIP's clients are Spanish speaking. Households were contacted about one week before the scheduled day. The research assistant explained who she was and the purpose of the focus groups to each client contacted. She informed them about the time commitment, tape recording, location, value of their contribution, that beverages and snacks would be served, and their confidentiality would be maintained. She responded to any questions or concerns that they had about their participation. Last, she explained that at the end of each focus group, there would be a raffle and a $35.00 gift certificate would be presented to one participating household. Maps were sent to households the next day.

Both events took place on a Saturday morning at 10:00 am, and follow-up phone calls were made on the Thursday night prior to the scheduled event to remind those who had said they would participate. Several households said they might be able to participate; the follow-up phone call to these households was to confirm whether or not they would participate.

After the focus group session was completed, letters were sent to the participants thanking them for their time and contributions. A gift certificate from Wal-Mart was sent to the participant who won the raffle.

Focus group results Focus Group #1 met on Saturday, June 6, 1998. The eight households who confirmed that they would participate arrived on time. In addition to those eight participants, three spouses and one household that had heard about the focus group from a neighbor joined the original eight. In all, 12 homeowners participated.

Focus Group #2 was to meet on Saturday, June 13, 1998. At the time of the reminder phone calls (June 11, 1998), three households committed to attend. Attempts were made to contact all 71 households from the Group #2 region with a yield of only three households committed to participate. The day of the event, none of the three households who committed previously by phone attended. Attempts to call them that morning failed, so the focus group session was canceled.

Introductions of all who participated in Focus Group #1 began at 10:15 am and the focus group continued until 11:30 am. Participants were reminded of the purpose of the meeting and again were informed that it would be recorded. All twelve agreed to continue. A Spanish-speaking translator was present. Everyone was encouraged to ask for clarification if anything was not completely understood.

The following is the list of questions that were asked of the participants.

1. What are some of the reasons you chose to buy a CHIP house?
2. What are things you like about the design of the interior of your house, such as layout, number of bedrooms, and storage space?
3. Are there things you do not like about the design of the interior of your house?
4. What do you like about the materials, appliances, and fixtures of the interior of your house (floor treatments, lighting, range, heating/cooling, etc.)?
5. Are there things you do not like about the materials, appliances, and fixtures of the interior of your house?
6. What changes or alterations, if any, have you made to the interior of your house?
7. If you have not made any changes or alterations, why not?
8. If you have made changes or alterations, why did you?

Findings from focus group discussion There were two general responses to the first question (reasons that motivated them to purchase a CHIP house). The most common response was that the monthly house payment was affordable and it was based upon their annual income. Another common response was that there was no down payment needed to purchase the home. Other reasons that these clients chose to purchase a CHIP home were: stability for their family; a place to call home for their children; and owning a home meant that one was "working for something."

The second question asked of the focus group participants pertained to the design of the interior of their home, such as the number of bedrooms, size of rooms, and storage space. The participants were first asked to discuss what they liked about the design of the interior of their home. Almost all participants

responded that overall, they really liked their home. Specific design elements that they liked were: having a heating and air conditioning system; good quantity of cupboard space; and location of the washer and dryer in the house versus the garage.

When queried about what they did not like about the design of their home, the participants answered with very specific responses. The most common response was that there were not enough bathrooms. Many homes had only one bathroom and household members found that to be very inconvenient. One participant commented that one bathroom in her three bedroom home was not enough, especially since she had two young children who needed access to a bathroom frequently. Another participant revealed that even though he had a two-bedroom home, he needed two bathrooms because of a special medical condition.

The second most common response to what they disliked about the design of the interior of their home was the size of the bedrooms, the living room, dining room, and kitchen areas. The participants considered the bedrooms to be too small to accommodate the number of persons per room and their furniture (over crowded). Many participants responded that the living room, dining room, and kitchen areas were too small both collectively and individually. One participant reported that there was a door to the garage right between her dining and living room area. This presented a problem because of the interruption of wall space as well as the door hitting her dining chairs and scratching them. Another participant noted that since his yard was so big, the overall house could have been bigger, and therefore, the individual rooms could have been larger.

Unlike a previous participant who mentioned she liked her washer and dryer located in her house, one participant commented that she wished her washer and dryer were located in the garage so she could use that space for

storage. Another participant wished that she had more shelves in her cabinet areas.

Questions three, four and five were designed to inquire about the participants likes and dislikes about the materials (flooring, countertops, etc.), appliances (range, heating and air conditioning, water heater), and fixtures (lighting) in their house. The participants' responses to what they liked were varied. One participant really liked the fluorescent lighting in her kitchen and another liked that she had a natural gas range. Many participants liked that they had the option to choose their flooring, countertop, and cabinet materials. Furthermore, one participant commented that the countertops were easy to clean and many said the quality of the countertops was very good.

More responses were provided for what participants did not like about the materials, appliances, and fixtures in their houses. Many participants complained about their air conditioning systems, noting that they did not work. Furthermore, they were dissatisfied with both the number and location of air vents. Most participants concurred that air vents in the hallways were plentiful, but air vents in rooms were minimal. One participant stated that he added additional vents for better distribution of air in rooms.

A second topic that most of the participants agreed was a big problem was the quality of the flooring finishes. The vinyl was called "cheap" and it was stated that if something dropped on it, the vinyl would tear. The carpet seemed problematic from a safety perspective. Many participants claimed that nails poked up through the carpet making it impossible to walk barefoot. Children were told to wear shoes when on the carpeted area.

Several participants talked about problems associated with exhaust fans in the bathrooms. Although the fans worked properly from a mechanical perspective, moisture was constantly building up and that, in turn, caused paint to peel. Numerous participants said that they would have preferred a window in

the bathroom to avoid moisture build-up. Other quality related issues were raised as well. One participant commented that his sheet rock was cracking and another said the lighting fixtures were poorly secured.

Questions six, seven and eight pertained to changes or alterations to the interior of their houses. Participants were asked to provide specific changes or alterations they had made and why they had done so. Also, participants were asked why they did not make changes or alterations.

The most common response that participants gave as to why they did not make changes or alterations to the interior of their home was because they feared their monthly mortgage payments would go up. Many of them understood that if "structural" changes were made, such as adding on a bedroom or converting a garage into a room, then Rural Development could increase their monthly payments because the value of their home had increased. A related reason was the cost of the improvements. Some participants said that they needed to have money in order to make improvements. Those participants that feared their monthly payments would increase also feared that they might not be able to pay for the improvements as well as the increase in their monthly mortgage payment.

A few participants had made minor improvements, including the installation of ceiling fans and garbage disposals. One reason ceiling fans had been installed was because of the poor distribution of air as discussed previously.

Since few alterations or modifications had been noted, participants were queried about what they would like to do if money and fear of increased mortgage payments were not an issue. Many participants responded that they would replace their vinyl and carpeting, add bedrooms, and create half-walls where existing walls completely divide two rooms such as the living room and kitchen.

Overall, the participants were proud to be homeowners and were grateful for CHIP's Rural Self-Help Program despite individual criticisms about quality and residential space plan issues. Many participants attempted to discuss exterior design elements of their houses. They were reminded that the focus of this study was the interior design elements.

Phase II: Survey of Households

Post Occupancy Evaluations (P.O.E.) is a formal process used by designers or researchers to evaluate the performance of their work after the structure has been built and occupied for sometime. P.O.E. were developed in the 1960s when Environment and Behavior researchers were focusing on the relationship between human behavior and the built environment (Preiser, Rabinowitz, & White, 1988). The benefits of P.O.E. are two-fold. First, the current structure can be evaluated to see whether or not the design was a success. Second, the designer or researcher can benefit from being aware of both the successes and failures of a structure so, recommendations for future structures can be provided.

Preiser, et.al. (1988), divide P.O.E. into three elements of building performance: technical, functional, and behavioral. The technical elements include fire safety, strength and durability of materials, plumbing and ventilation, illumination, acoustics, electrical systems, roofs, interior finishes, and environmental control systems. Functional elements focus on issues related to human factors, storage, communication and workflow, flexibility and change, and specialization of building types. Last, behavioral elements include the social and psychological aspects of the occupant's satisfaction and general well-being, such as territoriality, privacy, density, and social interaction. This study focused primarily on the second type of P.O.E. (functional) by surveying the residents about the quality and residential design of their home.

Instrument The survey instrument (see Appendix B) for this research was developed utilizing four methods. First, the researcher had professional experience as a Self-Help Loan Processor and Program Specialist and had received anecdotal information from similar clients since 1994. Second, selected portions of two previous instruments developed by Beamish (1983) titled "House Plan Evaluation Checklist" and "Housing Satisfaction Scale" were used to develop questions. Third, the outcomes from the focus group associated with this research were used to evaluate previously developed questions and to include questions that were missing from the original draft. And last, the results from the pilot test were used to shape the format and language used in the final survey form.

The final survey instrument was divided into the following sections:

1. Residential Space Plan Design: Questions 1-29 pertained to statements about storage areas, size of areas and location of rooms and features in the house. Each section included specific statements as well as their overall opinion about their satisfaction with their residential space plan design (see Figure 1).
2. Alterations and Modifications: Questions 30-34 pertained to statements about alterations and modifications made to the interior of the respondent's house.
3. Housing Quality: Questions 35-56 pertained to statements about housing quality. The quality section included specific statements as well as their overall opinion about their satisfaction with their housing quality. Respondents had the opportunity to describe why they were not satisfied with the housing quality as it pertained to each question.
4. Repair and Maintenance: Questions 57-59 pertained to statements about the repair and maintenance of their house.

5. Housing Information: Questions 60-64 pertained to specific housing information and their overall satisfaction with the interior of their house.
6. Demographic Information: Questions 65-71 pertained to general questions about the respondents' income, age, education, gender, ethnicity, and household composition (number of persons in the household and their relationship to the respondent).
7. Question 72: This was an open ended question that allowed the respondents to make any additional comments about their house.

Questions were predominately close ended with two open ended questions in the Alterations/Modifications section, two in the Repair and Maintenance section, and a comments area in the Housing Quality section. Responses were recorded using a Likert scale, where "1" indicated very dissatisfied and "5" indicated very satisfied. Where appropriate, an additional Likert number of "9" was included to represent "not applicable". In the Housing Quality section, respondents were requested to briefly explain why they were very dissatisfied with the housing conditions indicated in any of their Housing Quality statements.

At the end of the survey, respondents were able to write any additional comments that they wanted to share. This was not framed as a question, but as an opportunity to comment on issues related to the interior of their house.

The survey was created in both English and Spanish. The translation from English to Spanish was done by two Spanish speaking and Spanish writing individuals. Consideration was taken to make sure that the terminology used was appropriate for the clients who would receive the surveys.

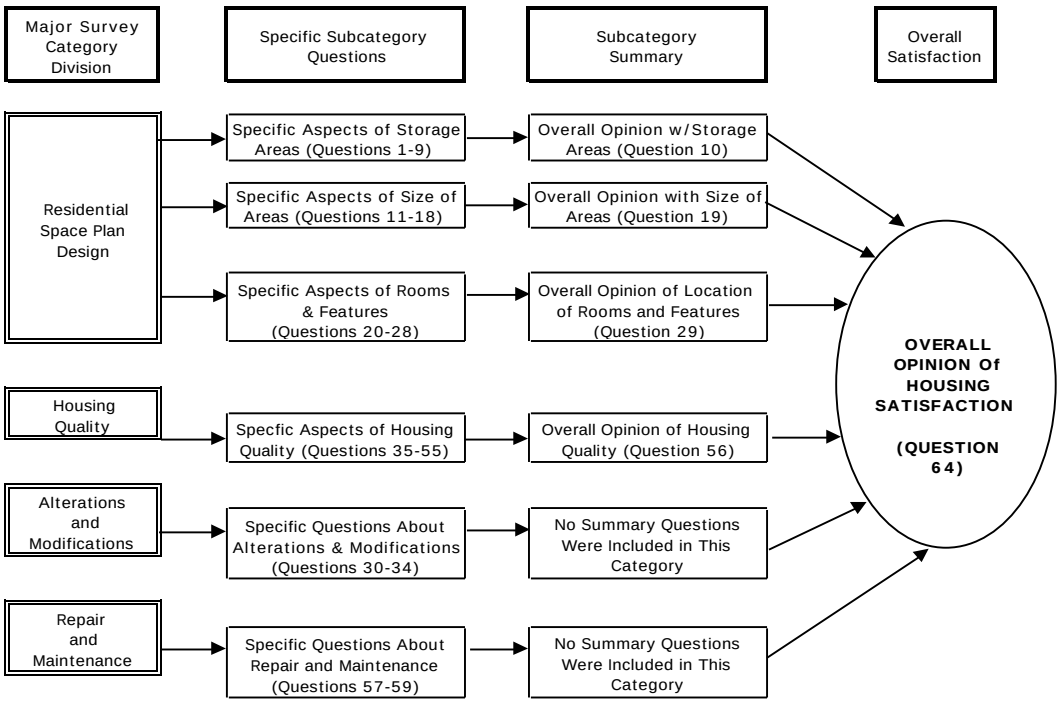

Figure 1 Model of Primary Survey Questions

Sample The sample for this research included 303 homeowners who built their homes through CHIP's Rural Self-Help Program's from 1991 through 1997. The Rural Self-Help homeowners were from the counties of Butte, Glen, and Shasta. There were a total of 303 households who participated in this program from 1991-1997. One homeowner from each household was asked to fill out the questionnaire.

Pilot Test A pilot test (see Appendix C) was administered to 10 CHIP homeowners who were not part of the sample. Of the 10 administered, nine were returned (a 90% response rate). This process helped determine whether there were any problems either with the questions contained in the survey or with the procedure.

From a survey design perspective, some changes were made to the layout and content of the survey information. Clearer language, direction, or design was included to maximize the participant's understanding of questions.

For questions 60 and 61, a line was added before each option, and the participant was directed to check the year and subdivision versus circling the number. Instead of an open ended question design for questions 62 and 63, specific bedroom and bathroom sizes were included for participants to check. For questions 65, 67, 68 and 69 a line was placed in front of each option so participants would know to check the appropriate answer(s). For question 70, the participants were asked to list the total number of people who live in the house including themselves. This was more clearly defined. Finally, for question 71, a line was added before each option and the direction to check the appropriate background was requested.

The layout of the survey changed so questions remained grouped together appropriately. The introduction was placed alone on the inside page and the final open ended question was moved to the back page. Both these changes allowed more space for the internal text and resulted in a better arrangement.

From a procedural perspective, some changes were made to the distribution and collection of surveys. Originally, the pilot test was to be mailed and the participants were to be asked to mail it back in the self-addressed, stamped envelope. After the pilot test was distributed, the decision was made not to mail the advanced notice letter but to provide the entire packet at the time of personal delivery. Furthermore, to encourage participants to fill out the survey immediately, they were told that the team would return in 20 minutes to retrieve them. This would enhance the return rate and minimize any delay in receiving the data.

Procedure for Main Survey Data Collection All 303 households from the developments completed during 1991-1997, were surveyed. The survey procedure incorporated elements from two of the four survey methods recommended by Salant and Dillman (1994): mail survey and drop-off survey.

Both methods were employed to enhance the response rate of those who received the survey.

According to Salant and Dillman (1994), a mail survey should include these procedural elements:

1. first mail out: personalized, advanced notice letter to all the participants stating the general purpose of the study and that they have been selected to participate;
2. second mail out: cover letter, survey, and stamped, return envelope;
3. third mail out: follow-up post card thanking those who responded and encouraging those who have yet to respond; and
4. fourth mail out: follow up letter with new cover letter and survey, requesting again that they complete the survey and return it promptly.

Although the mail out method allows the respondent the privacy to fill out the questionnaire, there is little control by the researcher over what happens once the questionnaire is mailed. Without the personal interaction, it is more difficult to encourage and motivate the recipient to follow through with filling out and mailing the completed questionnaire (Salant and Dillman, 1994).

The drop-off method of surveying includes the personal delivery of the questionnaire to the address of the intended respondent. Those delivering are instructed to try to deliver only to the intended respondents. Although this is not always possible, the personal interaction allows the person who delivers the survey the opportunity to encourage the intended respondent or those who will convey the message to the respondent, to fill out the questionnaire and mail it back. This method of surveying is very appropriate for " ... small community or neighborhood surveys in which respondents are not spread over a large area" (Salant & Dillman, 1994, p. 43).

In this research, certain elements from both the mail and drop-off survey methods were used to maximize the response rate. The packet distributed to

each household included these items: two introduction letters, the survey and a postage paid, return address envelop. The cover letters and survey were printed in both Spanish and English.

The two introduction letters (see Appendix D) informed the recipients that they had been selected to participate in a study about what factors influence the satisfaction of rural, self-help homeowners. Both letters were printed on letterhead from the corresponding institutions. The first was from the researcher and Committee chair, who represented the Department of Near Environments in the College Human Resources and Education at Virginia Polytechnic Institute and State University. This letter explained the purpose of the study and that the researcher was a graduate student. The second letter was from the Executive Director and the Self-Help Program Manager, who represented CHIP. This letter expressed CHIP's endorsement of the survey, verified that the researcher was an employee of CHIP and the survey was part of her dissertation topic.

Three persons bilingual in English and Spanish assisted in distributing and collecting the surveys. Over a period of two weekends (February 12, 13 and 19 20, 2000) between the hours of 10:00 am and 4:00 pm, surveys were hand delivered to each of the sample houses.

The English/Spanish-speaking assistants knew in advance which houses were primarily Spanish or English speaking. This was important because the appropriate survey and introduction could be used. The team rang the doorbell or knocked on the door and waited for someone to answer. This was done twice. If no one answered, the packet was securely taped to the front door. The address of a house that had no response was noted so a follow-up letter could be sent to encourage them to return the survey.

If someone came to the door, a brief salutation was given followed by a request to speak with the homeowner. The team explained the purpose of the survey, addressed any questions and inquired whether or not they could return in

20 minutes to retrieve the survey. The homeowner was given the option of answering the door upon the team's return or leaving it at the front door. It was noted on a subdivision map which surveys were collected. If the homeowner chose to mail the survey, the address was noted so a follow-up letter could be sent to encourage them to return the survey.

After all of the surveys were distributed, a follow-up postcard was sent to households who had not returned their surveys. This postcard encouraged them to fill out the survey and return it in the postage-paid envelope. If they misplaced their survey, there was a phone number they could call to request that a new one be sent. Five households requested that surveys be sent to them.

Response Rate A total of 303 households were administered the survey instrument. A total of 127 surveys were returned either in person or by mail. Of the 127 surveys received, 121 were deemed valid. The six surveys not used were determined to be invalid because they were not completed. The response rate for this survey instrument was 40%.

Variables and Analysis of Survey Instrument The survey instrument was divided into seven major sections: "Residential Space Plan Design", "Alterations/Modifications", "Housing Quality", "Repair and Maintenance", "Housing Information", "Demographic Information", and a final open ended question. A majority of the survey was designed with primary variables pertaining to specific areas or features of the respondents' house such as "Storage" or "Size", followed by Likert scale subcategory questions. Additional open ended questions and statements were included that pertained to "Alterations and Modifications" as well as "Repair and Maintenance" issues. A significant portion of the survey was devoted to statements about "Housing Quality" using a Likert scale and a place for respondents to include comments to briefly explain dissatisfaction with specific housing quality issues. A section on "Housing Information" and "Demographic Information" was also included to

assess the respondents' housing information as well as general characteristics about the respondents. Finally, an open ended question was included at the end for any additional comments about the respondent's interior of their house.

The survey results were analyzed using a SPSS statistical package. Each individual question was coded, as well as subcategory averages. The statistical analyses included descriptive statistics (frequencies, means, standard deviations) and inferential statistics (chi-square, one way ANOVA, independent t-tests, and stepwise regression).

Summary

This research examined the housing satisfaction of CHIP's low-income, rural, self-help households in the California counties of Butte, Glenn, and Shasta with specific respect to housing quality (durability and maintenance of building materials; appliances [range, heating and cooling units]; plumbing and electrical; furnishings [cabinet, flooring, countertops], and residential space plan design (storage, plan alterations, functionalism of space). This chapter described a brief overview of CHIP's Rural Self-Help Program, a discussion of the counties in which the population came from, focus group design and results, survey instrument design, pilot test, and data collection.

CHAPTER IV

RESULTS

The sample for this research included 303 homeowners who built their homes through CHIP's Rural Self-Help Program between the years 1991 and 1997. Elements from the mail and drop off survey methods were employed, and 303 surveys were distributed to this population. Of the 127 surveys returned, 121 were determined to be valid. This yielded a 40% return rate.

This chapter includes a discussion of the overall characteristics of the housing information, characteristics of the respondents in the sample, hypotheses tested, and an analysis of the data collected. For consistency, the percentage response rate presented reflected only data from actual responses and did not include missing data percentages. Also, the significance level used was $p < .05$.

Demographic Information

Personal information about the respondents included gender, age, nationality/ethnicity, education, annual household income, and number and composition of the household. Of the 121 respondents, 57% were female and 42% were male. The mean age for respondents was 38.06 years. Respondents were asked to indicate their national/ethnic background. Of the choices offered, respondents most frequently selected Hispanic (78%), followed by Caucasian (21%), Asian (7%), and Other (5%) respectively.

Educational attainment ranged from grade school completion (33%) to one respondent who received a college graduate degree (1%). The majority of respondents either had attained a grade school or high school education as shown in Table 1.

The annual household income for the respondents ranged from a low of less than $10,000 per year (6%) to a high at over $50,000 per year (2%). Table 1 reveals that the majority of respondents reported their annual household income was $15,000-$29,999.

Respondents were asked to list the total number of people who lived in the house including themselves. Answers ranged from the lowest occupancy of one person to the highest of 10 persons. The most frequent response was four persons as indicated in Table 1. They were further asked to indicate who lived in the house such as children, spouse, parents, etc. Table 2 indicates the most commonly selected categories were children (92%), spouse (72%), and parents (8%), and the least commonly selected categories were nonrelatives (1%), sisters (2%) and brothers (3%), and other relatives (2%).

Table 1

Demographic Characteristics

Description	N	%
Years of School Completed		
Grade school (1-6)	37	33
Middle school (7-9)	19	17
High school (10-12)	34	30
Vocational certificate	12	11
Associate degree	8	7
Under graduate degree	1	1
Total	113	99

(rounding error)

Table continues

Table 1 (continued)

Demographic Characteristics

Description	N	%
Annual income		
Less than $10,000	7	6
$10,000-$14,999	23	20
$15,000-$19,999	34	29
$20,000-$29,999	36	31
$30,000-$39,999	10	9
$40,000-$49,999	4	3
Over $50,000	2	2
Total	116	100
Number of people in the House		
1	3	3
2	8	7
3	22	18
4	34	29
5	20	17
6	18	15
7	8	7
9	2	2
10	2	2
Total	117	100

Table 2

Who Lives in the House

Description	N	%
Children		
With	109	92
Without	10	8
Parents		
With	10	8
Without	109	91
Spouse		
With	86	72
Without	33	28
Non-relatives		
With	1	1
Without	118	99
Brothers		
With	3	3
Without	116	98
Sisters		
With	2	2
Without	117	98
Other relatives		
With	2	2
Without	117	98
Total	119	100

Hypotheses Tested

In order to answer the research questions posed in Chapter I, the following hypotheses were tested.

H1: Overall opinion of storage areas, size of rooms, and location of rooms and features, and housing quality is related to respondents' overall satisfaction with the interior of their house.

H2: Overall opinion of storage areas of the respondents' housing is related to specific aspects of storage areas.

H3: Overall opinion of the size of areas of the respondents' housing is related to specific aspects of size of areas.

H4: Overall opinion of the location of rooms and features of the respondents' housing is related to specific aspects of location of rooms and features.

H5: Overall satisfaction with the interior quality of the respondents' housing is related to specific aspects of interior housing quality.

H6: Overall satisfaction with the interior of the respondents' housing is related to location of the subdivision.

H7: Overall satisfaction with the interior of the respondents' housing is related to number of bedrooms.

H8: Overall satisfaction with the interior of the respondents' housing is related to number of bathrooms.

H9: Skills learned during the self-help training process will cause the majority of respondents to report completion of their own modifications and alterations.

H10: Overall housing satisfaction with the interior of respondents' housing is greater when alterations or modifications are completed by respondents. Those who reported making their own alterations or modifications will show higher satisfaction than those who did not make alterations or modifications.

H11: Overall housing satisfaction is related to specific demographic characteristics of the respondents.

The results of these tests are presented in the following sections: housing characteristics, alterations and modifications, repair and maintenance, housing quality, and residential space plan design. Figure 1 provides a model of the primary dependent and independent variables.

Housing Information

The 121 surveys came from a total of 10 subdivisions that varied in size; the smallest had 6 units (Spring Hill) and the largest had 56 units (Hoff 3 & 4). The subdivision with the smallest return rate (20%) was Chadwick Estates. The subdivision with the largest return rate (67%) from Spring Hill (see Table 3).

The homes related to this survey were built between the years 1991 and 1997. The lowest survey response rate of 4% was from the 1991 homeowners and the highest survey response rate, 30%, was from the 1996 homeowners as shown in Table 4.

When the respondents were asked to indicate their overall satisfaction with the interior of their house on a Likert scale with 1 being "Very Dissatisfied" and 5 being "Very Satisfied", the mean response rate was 3.52 (sd = 1.22).

Table 3

Name of Subdivision

Description	N	% Return Rate of All Responses	% Return of Subdivision*
Spring Hill	4	3	67
Brophy	4	3	36
Chadwick Estates	5	4	19
Western Elm	13	11	62
Cody	13	11	48
Wiggins	13	11	42
Hoff 1 & 2	20	17	53
Greenwood	15	12	38
John F. Kennedy	17	14	36
Hoff 3 & 4	17	14	30
Total	117	100	N/A

*Note: % Return of Subdivision represents the proportion of responses of each subdivision.

Table 4

Response Rate for Year House Completed

Description	N	%
Year		
1991	4	4
1992	10	9
1993	17	15
1994	6	5
1995	15	13
1996	34	30
1997	26	23
Total	117	99 (rounding error)

Respondents were asked to indicate how many bedrooms and bathrooms they had in their house at the time of purchase. Table 5 reveals the number of bedrooms ranged from two to five with a majority (71%) of homes having three bedrooms. The number of bathrooms ranged from one and one half to two and a one-half with 50% of homes having two and one-half baths as illustrated in Table 5. This distribution of homes is representative of the most common bedroom and bathroom house plans.

Table 5
Number of Bedrooms and Bathrooms

Description	N	%
Bedrooms		
2	7	6
3	85	71
4	25	21
5	3	3
Total	120	100
Bathrooms		
1.5	22	18
2	38	32
2.5	59	50
Total	119	100

Hypothesis 1: Assessment of Overall Housing Satisfaction

The dependent variable in this questionnaire was the respondents' overall opinion of their housing satisfaction. The selected subcategory predictor variables included the overall opinion of storage areas, size of rooms, location of rooms and features, and housing quality subcategories. The mean for overall opinion of storage areas, size of rooms, location and features of house, housing quality, and the overall satisfaction with their interior is shown in Table 6.

A regression analysis was conducted on overall satisfaction with respect to responses to questions 10, 19, 29 and 56. The regression analysis revealed that three of the four predictor variables contributed to explaining the variance and were statistically related to overall satisfaction. Housing quality was the strongest predictor (R^2=.50). Size of rooms accounted for another 6% of the variance (p<.001), followed by storage space, which accounted for another 2% of the variance (p<.03). The combined variance was 58.4%. Location appeared not to be an important predictor of overall satisfaction. Table 7 provides a summary of the regression analysis.

Table 6

Mean Opinion for Variables Entered into the Regression Analysis

Regression Variables	Mean	Standard Deviation
Storage (question 10)	3.74	1.1401
Size (question 19)	3.22	1.3159
Location (question 29)	4.27	0.8771
Housing quality (question 56)	3.60	1.1552
Overall (question 64)	3.51	1.1228

Table 7

Regression Analysis for Significant Predictors on Overall Satisfaction

Description	R^2	Standardized Beta	t-value	p
Housing quality	0.50	0.454	5.31	0.001
Size	0.06	0.217	2.23	0.02
Storage	0.02	0.197	2.15	0.03

Residential Space Plan Design

The respondents were asked to express their specific and overall satisfaction with several aspects of the interior of their house. Within the

"Residential Space Plan Design" section, respondents indicated their level of satisfaction with statements about storage areas, size of areas, and location of rooms and features. In each section they were asked specific questions followed by their overall opinion of storage areas, size of areas, and location of rooms and features.

Three separate regression analyses were conducted in order to assess the relationship between overall satisfaction associated with storage areas, size of areas and location of rooms and features, and specific aspects of each of these general categories. The predictor questions for question 10 were questions 1-9; for question 19 they were questions 11-18; and for question 29, they included questions 20-28 (see Figure 2).

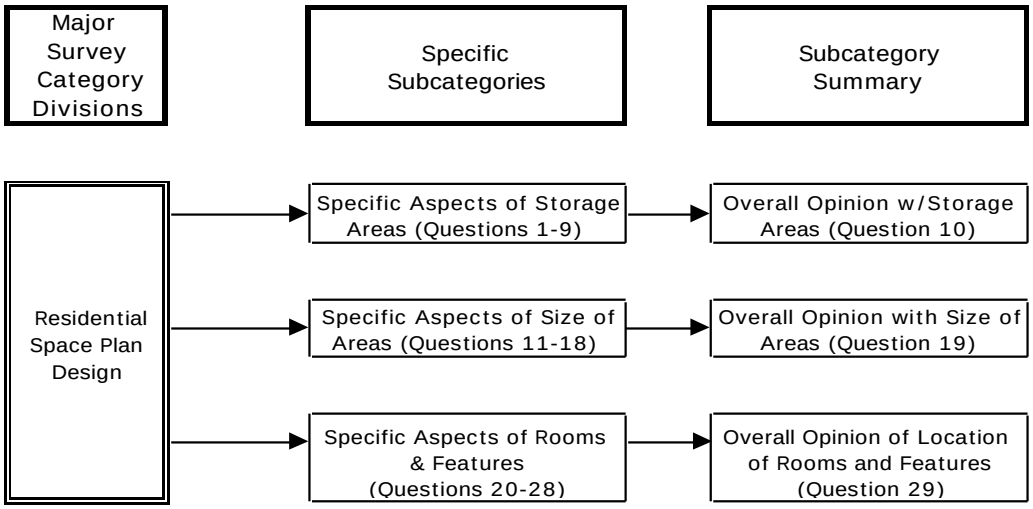

Figure 2 Model of Residential Space Plan Questions

Hypothesis 2: Hypothesis 2, overall opinion of storage areas of the respondents' housing is related to specific aspects of storage areas, was tested. The mean response for questions 1-10 is shown in Table 8.

Table 8

Mean Response for Specific Aspects of Storage Areas

Description	N	Mean	Standard Deviation
Front entry	116	4.52	2.4793
Master bedroom bath	118	4.22	2.2801
Central hall bathroom	118	4.08	1.3784
Hall closet	119	3.99	1.3870
Kitchen	116	3.97	1.2612
Closet space in master bdr.	118	3.82	1.2239
Closet space in other bdrs.	118	3.74	1.2433
Overall opinion of storage	117	3.74	1.1401
Household linens	119	3.65	1.4117
Cleaning equip/supplies	115	3.55	1.4704

Overall, the respondents were moderately to very satisfied with the storage areas in their house. With respect to the specific categories of storage area, respondents were very satisfied with the front entry and master bedroom and central hall bathroom. They were moderately to very satisfied with storage in the hall closet, kitchen, closet space in master bedroom and other bedrooms and least satisfied with storage for household linens and cleaning equipment and supplies.

A regression analysis was conducted on overall satisfaction with storage areas to determine to what extent questions 1-9 explained the variance associated with question 10. The regression analysis revealed that three of the nine predictor variables contributed to an explanation of the variance and thus were statistically related to overall satisfaction with storage areas. Storage space for household linens was the strongest predictor (R^2=.55). Closet space in bedrooms accounted for another 9% of the variance (p<.001), followed by closet space in the master bedroom, which accounted for another 2% of the variance (p<.009). The combined variance accounted for was 66.8%. The remaining

seven questions were not important predictors of overall satisfaction with storage areas. Table 9 shows a summary of this regression analysis.

Table 9

Regression Analysis for Significant Predictors of Storage Area Variables on Overall Satisfaction of Storage Areas

Description	R^2	Standardized Beta	t-value	p
Size of:				
Storage for household linens	0.55	0.392	4.75	0.001
Closet space in bedrooms	0.09	0.316	3.59	0.001
Closet space-master bdr.	0.02	0.217	2.67	0.009

Hypothesis 3: Hypothesis 3, overall opinion of the size of areas of the respondents' housing is related to specific aspects of size of areas, was tested. The mean response for questions 11-19 is shown in Table 10.

Table 10

Mean Response for Specific Aspects of Size of Areas

Description	N	Mean	Standard Deviation
Size of:			
Master bedroom bathroom	118	4.18	2.3105
Hallways	114	3.96	1.1744
Central hall bathroom	118	3.79	1.3452
Kitchen	118	3.75	1.3971
Eating areas in kitchen	119	3.71	1.6781
Living room / dining room	118	3.41	1.5092
Master bedroom	119	3.28	1.3712
Overall opinion of size of areas	119	3.23	1.3159
Other bedrooms	118	3.08	1.3810

Overall, the respondents were moderately satisfied with the size of areas in their house. With respect to the specific categories of size of areas, respondents were most satisfied with the size of the master bathroom and least satisfied with the size of the other bedrooms. Respondents were moderately satisfied with the size of hallways, central hall bathroom, kitchen, eating areas in the kitchen, living room and dining room and master bedroom.

A stepwise regression analysis was conducted on overall satisfaction with size of areas to determine to what extent questions 11-18 helped to explain the variance associated with question 19. The regression analysis revealed that four of the eight predictor variables contributed to explaining the variance and were statistically related to overall satisfaction with size of areas. Size of other bedrooms was the strongest predictor (R^2=.64). Size of master bedroom accounted for another 15% of the variance (p<.001), followed by size of kitchen, which accounted for another 3% of the variance (p<.001), and finally size of central hall bathroom accounted for another 1% of the variance (p<.005). The combined variance accounted for was 82.3%. The remaining four questions appeared not to be important predictors of overall satisfaction with size of areas. Table 11 provides a summary of this regression analysis.

Table 11

Regression Analysis for Significant Predictors of Size of Area Variables on Overall Satisfaction of Size of Areas

Description	R^2	Standardized Beta	t-value	p
Size of:				
Other bedrooms	0.64	0.398	7.03	0.001
Master bedroom	0.15	0.354	5.91	0.001
Kitchen	0.03	0.169	3.32	0.001
Central hall bathroom	0.01	0.165	2.89	0.005

Hypothesis 4: Hypothesis 4, overall opinion of location of rooms and features of the respondents' housing is related to specific aspects of location of rooms and features, was tested. The mean response for questions 20-29 is shown in Table 12.

Table 12

Mean Response for Specific Aspects of Location of Rooms and Features

Description	N	Mean	Standard Deviation
Location of:			
Master bedroom	116	4.69	1.8293
Kitchen	120	4.38	.9081
Central hall bathroom	118	4.36	1.0172
Master bedroom	120	4.30	1.0580
Living room / dining room	120	4.28	1.0449
Garage	118	4.27	1.0183
Overall opinion of location	117	4.27	.8771
Other bedrooms	119	4.23	.9741
Entrances into the house	119	4.12	1.0828

Overall, the respondents were very satisfied with the specific aspects of location of rooms and features in their house. With respect to aspects of specific rooms and features, respondents were most satisfied with the location of the master bedroom and least satisfied with the location entrances into the house. Respondents were very satisfied with the location of the kitchen, central hall bathroom, master bedroom, living room and dining room, garage, and other bedrooms.

A stepwise regression analysis for this hypothesis was conducted on overall satisfaction with specific aspects of location of rooms and features to determine to what extent questions 20-28 were related to question 29. The regression analysis revealed that six of the nine predictor variables were statistically related to overall satisfaction with location of rooms and features.

Location of the master bedroom was the strongest predictor (R^2=.62). Location of entrances into the house accounted for another 10% of the variance (p<.001), followed by location of windows which accounted for another 5% (p<.001), followed by location of other bedrooms which accounted for another 2% (p<.001), location of kitchen which accounted for another 2% (p<.002), and finally location of garage which accounted for another 1% of the variance (p<.006). The combined variance accounted for was 82.9%. The remaining three questions appeared not to be important predictors of overall satisfaction with location of rooms and features. Table 13 presents a summary of this regression analysis.

Table 13

Regression Analysis for Significant Predictors of Location of Room and Feature Variables and Overall Satisfaction of Location of Rooms and Features

Description	R^2	Standardized Beta	t-valu	p
Location of:				
Master bedroom	0.62	0.123	1.69	0.095
Entrances into house	0.10	0.241	4.08	0.001
Windows	0.01	0.12	1.81	0.074
Other bedrooms	0.02	0.238	3.87	0.001
Kitchen	0.02	0.188	2.95	0.004
Garage	0.01	0.19	2.83	0.006

Housing Quality

The respondents were asked to express their individual and overall satisfaction with several aspects of the interior of their house (see Figure 3).

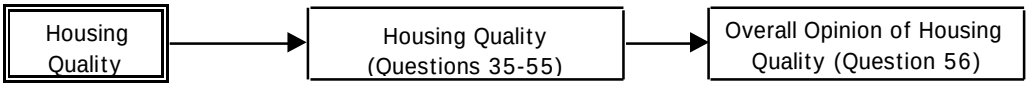

Figure 3 Model of Housing Quality Questions

In the “Housing Quality” section, respondents indicated their level of satisfaction with statements about quality of building materials, appliances, plumbing, electrical, fixtures, flooring finishes, cabinets, interior construction, finishes, and windows. The mean response for questions 35-56 is shown in Table 14.

Table 14

Mean Response for Housing Quality Features of the House

Description	N	Mean	Standard Deviation
Quality of:			
Water heater	121	4.35	.9193
Heating unit	121	4.24	1.0569
Air conditioner	191	4.20	1.0937
Air distribution (vents)	120	4.14	1.1689
Electrical	121	4.02	1.1140
Range (oven/burners)	120	3.88	1.2174
Bathroom cabinets	119	3.87	1.1829
Bathroom fans	114	3.87	1.2657
Kitchen cabinets	121	3.84	1.2316
Kitchen countertops	119	3.76	1.2262
Built-in lighting fixtures	119	3.72	1.2883
Interior construction	119	3.70	1.2726
Plumbing	120	3.67	1.3050
Windows	121	3.60	1.3753
Interior walls	118	3.52	1.3057
Interior building materials	121	3.49	1.2657
Overall quality	120	3.60	1.1552
Exterior & interior doors	120	3.43	1.3704
Interior paint	119	3.03	1.4954
Flooring In bathrooms	120	2.80	1.4872
Carpeting	121	2.62	1.4784
Flooring in kitchen	120	2.46	1.4889

Overall, the respondents were moderately satisfied with housing quality aspects of their house. With respect to specific housing quality aspects, respondents were most satisfied with their water heater and least satisfied with their carpeting. Respondents were very satisfied with the quality of their heating, air, and ventilation system and electrical. They were moderately satisfied with the quality of their range; bathrooms cabinets and fans; kitchen cabinets and countertops; lighting fixtures; interior construction; plumbing; windows; interior walls and building materials; interior and exterior doors; and interior paint. They were less than satisfied with their kitchen and bathroom flooring and carpeting.

Respondents were provided with several statements about the quality of their house. In addition to rating their opinion of their satisfaction with each, they were also provided an opportunity to describe why they were not satisfied (open-ended response). Questions 35-56 addressed issues about appliances, finishes, construction, plumbing, electrical, etc. Table 15 (see Appendix E) provides a list of the open-ended responses to questions 35-56.

A brief discussion of the most popular response for each of these questions follows. Moisture problems were noted under windows. Exterior and interior doors were considered cheap. Poor workmanship was cited for interior walls. Interior paint, kitchen and bathroom cabinets were considered cheap. The quality of carpeting, bathroom and kitchen flooring, and kitchen countertops were noted as being cheap. The water heater was cheap and the heating and cooling units did not work or leaked. The air distribution vents did not work and/or were cheap. The quality of interior construction and building materials were categorized as cheap. The plumbing leaked and there was a need for more electrical outlets. Lighting fixtures were average or did not work. Regarding the quality of the bathroom fans, respondents noted they either did not have any or

they did not work. Finally, in response to their overall satisfaction, a few respondents commented that overall, their housing quality was cheap.

Hypothesis 5: A regression analysis was conducted using responses to questions 35-55 as predictor variables of overall housing quality and the respondents' overall satisfaction with the interior of their housing. Therefore, the hypothesis that overall housing satisfaction with the interior quality of the respondents' housing is related to specific aspects of housing quality was tested.

The stepwise regression analysis revealed that six of the 21 predictor variables were statistically related to overall satisfaction with housing quality. Quality of interior building materials was the strongest predictor (R^2=.66). Quality of bathroom flooring accounted for another 8% of the variance (p<.001), followed in descending order by: quality of interior construction which accounted for another 4% (p<.001), quality of windows which accounted for another 2% (p<.001), quality of interior paint which accounted for another 2% (p<.014), and finally quality of bathroom cabinets which accounted for another 1% of the variance (p<.026). The combined variance accounted for was 82.3%. Other variables appeared not to be important predictors of overall satisfaction with housing quality. Table 16 provides a summary of this regression analysis.

Table 16

Regression Analysis for Significant Predictors of Housing Quality on Overall Satisfaction of Housing Quality

Description	R^2	Standardized Beta	t-value	p
Quality of:				
Interior building materials	0.66	0.307	3.81	0.001
Flooring in bathrooms	0.08	0.173	3.08	0.003
Interior construction	0.04	0.278	3.57	0.001
Windows	0.02	0.164	3.16	0.002
Interior paint	0.01	0.132	2.53	0.013
Bathroom cabinets	0.01	0.129	2.27	0.026

Hypothesis 6:

Hypothesis 6, overall satisfaction with the interior of the respondents' housing is related to the location of the subdivision, was tested. A one-way analysis of variance was computed using name of subdivision as the independent variable and overall satisfaction as the dependent variable to assess whether subdivisions had an affect on respondents' overall satisfaction. Of the ten subdivisions surveyed, three (Spring Hill, Brophy, and Chadwick Estates) were omitted from the analysis because they had five or fewer responses. The analysis showed no differences among the remaining subdivisions with respect to overall satisfaction [F (6, 103) = 1.069, Mse=1.34, p > .05].

Hypothesis 7:

Hypothesis 7, overall satisfaction with the interior of the respondents' housing is related to number of bedrooms, was tested. A one-way analysis of variance was computed using number of bedrooms as the independent variable and overall satisfaction as the dependent variable to assess whether the number of bedrooms influenced respondents' overall satisfaction. The choices for number of bedrooms ranged from two to five. The analysis revealed that number of bedrooms had no significant affect on the overall satisfaction of respondents [F (3, 115) = .087, Mse=.112, p > .05].

Hypothesis 8:

Hypothesis 8, overall satisfaction with the interior of the respondents' housing is related to number of bathrooms, was tested. A one-way analysis of variance was computed using number of bathrooms as the independent variable and overall satisfaction as the dependent variable to assess whether the number of bathrooms influenced respondents' overall satisfaction. The choices for

number of bathrooms ranged from one and one-half to two and one-half. The analysis revealed that number of bathrooms had no significant affect on the overall satisfaction of respondents [F (2, 114) = 1.11, Mse=1.39, p > .05].

Alterations, Modifications, and Repairs

Respondents were asked four questions about alterations and modifications they had made to their house (see Figure 4). In question 30, respondents were asked to indicate whether or not they had made any alterations or modifications to the interior of their house. Of the 121 responses, 29% indicated they had made alterations or modifications. The majority (70%) indicated they had not.

Table 17 lists the variety and frequency of alterations or modifications that were made. The most common changes included painting, replacement of flooring, installation of shelves or cabinets, new light fixtures, and new windows. Although this study focused on the interior of peoples' houses, many people commented on changes they had made to the exterior of their house, such as concrete, patio additions, painting, and the like.

Table 17
Types of Alterations and Modifications

Description	N	%
Painting	10	18
Installed shelves/cabinets	9	16
Installed vinyl	6	11
Changed windows	5	9
Changed light fixtures	5	9
Changed doors	3	5
Installed fans	2	4

(table continues)

Table 17 (continued)

Description	N	%
Installed other flooring	2	4
Moved laundry location	2	4
Nothing	2	4
Additions/enlarged	1	2
Changed sinks	1	2
Removed walls	1	2
Additional cable/outlets	1	2
Carpet	1	2
Vents	1	2
Baseboards	1	2
Dishwasher	1	2
Electric	1	2
Plumbing	1	2
Total	56	104 (rounding error)

Table 18 shows the reasons why people chose not to make alterations or modifications. The two most common reasons were the lack of income and that the changes were not necessary because they were satisfied with the interior.

Respondents were queried as to whether or not they completed the alterations or modifications themselves or hired someone to do it.
Of the 34 responses, the majority (88%) stated they did it themselves and 12% hired someone else. Respondents were further asked if they did the alterations themselves, did they use the training they received when they built their self-help house. Of the 34 responses, the majority (68%) indicated they did use the training, 21% said they did not, and 12% said it was not applicable.

Table 18

Reasons Not to Make Alterations and Modifications

Description	N	%
No income	30	48
Satisfied/Not necessary	23	37
No time	4	6
Don't know how	3	5
House plan can't be changed	1	2
Plan to move	3	2
Total	62	100

Respondents were asked three questions pertaining to the repair and maintenance of their house (see Figure 4). First, they were asked to describe the extent to which the Self-Help Program taught them the necessary skills to do the repairs on their house, such as fixing a leaky faucet or cracked water pipes. Table 19 lists the responses to this question. The most frequent answer was that the program did not teach them repair skills (45%). An equal proportion (17%) thought that they had learned a lot or were taught one or two things.

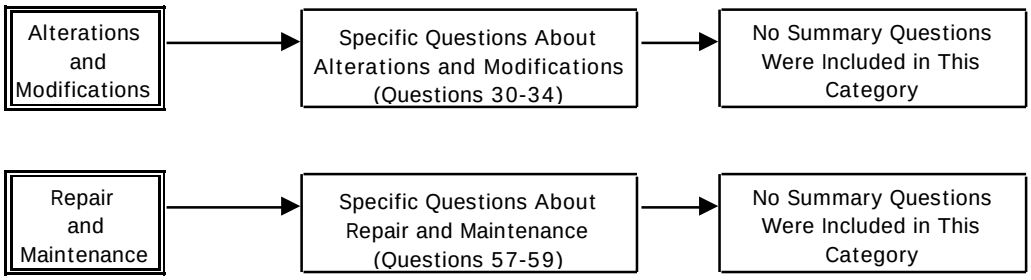

Figure 4 Model of Alterations/Modifications/Repair/Maintenance Questions

Table 19

Skills to Do Repairs

Description	N	%
None/didn't teach	37	45
Learned a lot/Taught many skills	14	17
Taught 1 or 2 things	14	17
Had knowledge before	8	10
Little	7	9
No problems/Don't know	3	4
Total	62	101
		(rounding error)

Second, the respondents were asked to describe whether the Self-Help Program taught them the necessary skills to do maintenance. The most frequently cited answers were learned/taught a lot, none/didn't teach, and learned how to paint and caulk (see Table 20). Respondents were then asked if someone in the household did the repairs and maintenance of their house. Of the 116 responses, 13% said never, 47% said sometimes, and 36% said always.

Table 20

Skills to Do Maintenance

Description	N	%
None/didn't teach	18	22
Painting or caulking	18	22
Learned/Taught a lot	17	21
Little	11	13
Can do own repairs	10	12
Not necessary	4	5
Had previous knowledge	4	5
Total	82	100

Hypothesis 9: Hypothesis 9, skills learned during the self-help training process will cause the majority of respondents' to report completion of their own modifications and alterations on their interiors, was tested. A chi-square analysis on "Did you do alterations or modifications yourself or hire someone else?" revealed that when alterations were made, 88% of the respondents reported that they did the work themselves ($\chi 2=19.88$, df=1, $p< .001$). A chi-square analysis was then performed on responses to "If you did make alterations/modifications, did you use the training learned while building your self-help home to make your alterations/modifications?" The analysis was significant ($\chi 2=8.53$, df=1, $p< .003$). Approximately 77% of the respondents who performed their own alterations/modifications reported that the self-help training was useful.

Hypothesis 10: Hypothesis 10, overall housing satisfaction with the interior of respondents' housing is greater when alterations or modifications were completed by respondents, was tested. An independent samples t-test was run on those respondents who had done alterations/modifications to the interior of their house versus those who had not with respect to their overall satisfaction. The analysis was not significant (t=-.261, df=113, $p> .05$).

Hypothesis 11:

Hypothesis 11, overall housing satisfaction is related to specific demographic characteristics of the respondents, was tested. The independent variables were years of schooling, income, and number of people in the household and the dependent variable was overall satisfaction. A stepwise regression analysis revealed that none of the variables were entered into the model. It was determined that all three independent variables were not related to explaining overall satisfaction.

Further investigation into the three independent variables was tested. A one-way ANOVA was completed with years of schooling as the independent

variable and overall satisfaction as the dependent variable. The analysis was not significant [F(4,108) = 1.31, Mse= 1.64, p> .05)]. A separate one-way ANOVA was completed with income as the independent variable and overall satisfaction as the dependent variable. The analysis was also not significant [F(4,111) = .316, Mse= .408, p> .05)]. A correlation was conducted between number of people in the household and overall satisfaction. The analysis was not significant (r=-.11, p> .05). These analyses confirmed the results of the regression analysis.

Comments

Question 72 allowed respondents the opportunity to add any additional comments about the interior of their houses. Table 21 lists the categorical responses. While 16% of the respondents were satisfied, that same proportion thought their house was too small. Other frequent comments were the flooring materials were cheap and there was a need for two full baths. Many of these comments were reiterations from comments made in the Housing Quality section where they were provided an area to make comments about why they were dissatisfied.

Table 21
Comments

Description	N	%
Satisfied	16	16
Too small	16	16
Cheap flooring materials	15	15
Need 2 full baths	10	10
Poor workmanship	9	9
Cheap paint	8	8
Poor ceiling/wall construction	7	7
Heating/cooling problems	4	4
Cheap doors	3	3
Cheap flooring construction	3	3
Not satisfied	2	2
Total	98	93 (rounding error)

Summary

This chapter included a summary of the hypotheses tested, a discussion of the overall characteristics of the housing information, characteristics of the respondents in the sample and an analysis of the data collected. For consistency, the percentage response rate presented reflected only data from actual responses and did not include missing data percentages.

The major conclusions from the data analysis were as follows:

1. Respondents' overall satisfaction with the interior of their housing was explained by their overall opinion of housing quality, overall opinion of size of areas, and overall opinion of storage areas.

2. The most important predictors of respondents' overall satisfaction with storage areas were household linen storage, closet space in bedrooms, and closet space in the master bedroom.
3. The most important predictors of respondents' overall satisfaction with size of areas were size of: other bedrooms, master bedroom, kitchen, and central hall bathroom.
4. The most important predictors of respondent's overall satisfaction with location of rooms and features were the location of: the master bedroom, entrances into the house, windows, other bedrooms, kitchen, and garage.
5. The most important predictors of respondents' overall satisfaction with housing quality were quality of: interior building materials, flooring in bathrooms, interior construction, windows, interior paint, and bathroom cabinets.
6. Location of subdivisions had no significant affect on respondents' overall satisfaction with the interior of their housing.
7. Number of bedrooms had no significant affect on respondents' overall satisfaction with the interior of their housing.
8. Number of bathrooms had no significant affect on respondents' overall satisfaction with the interior of their housing.
9. Self-help training was a useful tool for respondents' ability to perform and complete alterations or modifications on their interiors.
10. There was no significant difference in overall housing satisfaction between those respondents who completed alterations or modifications on their interiors and those who did not.
11. There was no significant difference in overall housing satisfaction with respect to respondents' years of schooling, income, or household size.

Chapter V

SUMMARY, CONCLUSIONS, IMPLICATIONS, RECOMMENDATIONS

This chapter provides a brief summary of the research conducted, conclusions and implications and recommendations for future research on the satisfaction of rural, self-help homeowners with respect to housing quality and residential space plan design.

Summary of the Research Conducted

Purpose

The purpose of this research was to investigate the housing satisfaction of rural, self-help homeowners with respect to the interior of their houses. This research surveyed households' satisfaction with respect to housing quality and residential space plan design. Aspects of housing quality included: durability and maintenance of interior building materials; appliances (range, heating and cooling units); plumbing and electrical; and furnishings (cabinet, flooring, countertops). Aspects of residential space plan design included: storage areas, size of areas, and location of rooms and features.

Sample

The sample for this research included 303 homeowners who built their homes through CHIP's Rural Self-Help Program between the years 1991 and 1997. These households came from the California counties of Butte, Glenn, and Shasta. The population was deemed homogeneous.

Demographics of Sample

Of the 120 respondents, 57% were female and 42% were male. The mean age of respondents was 38 years and the majority (78%) were Hispanic. Less than 10% of the sample had more than a high school education. While a third reported only a grade school education, another third reported achieving a high school level of education. The majority of respondents reported that their annual household income was $15,000-$29,999. With regard to household size, four persons were the most frequent response. Household configuration was primarily composed of spouses and children.

Survey Instrument

The survey instrument (see Appendix B) for this research was developed utilizing four methods: the researcher's professional experience, selected portions of two previous instruments developed by Beamish (1983), focus group data, and pilot test results. The final survey instrument was divided into seven sections: residential space plan design; alterations and modifications; housing quality; repair and maintenance; housing information; demographic information; and an open ended comment question at the end of the survey.

Questions were predominately close ended and the majority of responses were recorded using a Likert scale, where "1" indicated "Very Dissatisfied" and "5" indicated "Very Satisfied". Where appropriate, an additional Likert number of "9" was included to represent "Not Applicable".

Elements from mail and drop off survey methods were employed; 303 surveys were distributed door-to-door. Of the 127 surveys returned, 121 were determined to be valid. This yielded a 40% return rate.

Research Questions

The hypotheses were generated from the following research questions.

1. Does overall opinion of storage areas, size of rooms, and location of rooms and features affect respondents' overall satisfaction with the interior of their housing?
2. How satisfied are households with the design of storage areas? Do specific aspects of storage space affect their overall opinion of storage space in their house?
3. How satisfied are households with the size of areas in their house? Do specific aspects of size of areas affect their overall opinion of size of rooms in their house?
4. How satisfied are households with the location of rooms and features in their house? Do specific aspects of location of rooms and features affect their overall opinion of location of rooms and features in their house?
5. How satisfied are households with the quality of the interior of their house? Do specific aspects of housing quality affect their overall housing satisfaction with the interior quality of their house?
6. Do specific housing characteristics such as number of bedrooms, number of bathrooms, and location of the subdivision, affect respondents' overall satisfaction with the interior of their house?
7. If households completed their own interior alterations or modifications, did the training learned during the self-help process assist them in performing the alterations/modifications?
8. Does the completion of alterations/modifications by households affect their overall housing satisfaction with the interior of the house?

9. Do specific demographic characteristics, such as ethnicity, age, or income, of the respondents affect overall housing satisfaction with the interior of their house?

Hypotheses Tested

The following hypotheses and sub-hypotheses were tested.

H1: Overall opinion of storage areas, size of rooms, and location of rooms and features, and housing quality is related to respondents' overall satisfaction with the interior of their house.

H2: Overall opinion of storage areas of the respondents' housing is related to specific aspects of storage areas.

H3: Overall opinion of the size of areas of the respondents' housing is related to specific aspects of size of areas.

H4: Overall opinion of the location of rooms and features of the respondents' housing is related to specific aspects of location of rooms and features.

H5: Overall satisfaction with the interior quality of the respondents' housing is related to specific aspects of interior housing quality.

H6: Overall satisfaction with the interior of the respondents' housing is related to location of the subdivision.

H7: Overall satisfaction with the interior of the respondents' housing is positively associated with number of bedrooms.

H8: Overall satisfaction with the interior of the respondents' housing is positively associated with number of bathrooms.

H9: Skills learned during the self-help training process will cause the majority of respondents to report completion of their own modifications and alterations.

H10: Overall housing satisfaction with the interior of respondents' housing is positively associated with alterations or modifications completed by respondents. Those who reported making their own alterations or modifications will show higher satisfaction than those who did not make alterations or modifications.

H11: Overall housing satisfaction is related to specific demographic characteristics of the respondents.

Conclusions

The following section provides a summary of the primary conclusions of this research.

Overall Satisfaction Variables

The mean response of the overall satisfaction variables (storage areas, size of rooms, location and features, housing quality, and the total overall satisfaction with the interior of the respondents' housing) was tested. The results of this analysis revealed that respondents were moderately satisfied with all five of the variables listed above. In a further analysis, the relationship between total overall satisfaction with respect to size of rooms, storage areas, housing quality and location of rooms and features was examined (Hypothesis 1). The results of this analysis suggested that overall size of rooms, storage areas, and housing quality aspects are more important to respondents' overall satisfaction than the location of rooms and features.

This analysis demonstrates that should CHIP decide to make changes to their floor plans or building materials, that careful attention be given to room sizes, storage areas and housing quality aspects.

Specific Aspects of Storage Areas

The mean response for specific aspects of storage areas was tested. Overall, the respondents were moderately to very satisfied with the storage areas in their house. Respondents' reported that they were most satisfied with storage areas in their front entry and least satisfied with storage areas for cleaning equipment and supplies. Respondents were very satisfied with storage in the master bedroom and central hall bathroom and they were moderately satisfied with storage in the hall closet, kitchen, closet space in master bedroom and other bedrooms and household linens.

The relationship between overall housing satisfaction with the interior of the respondents' housing and storage areas was tested (Hypothesis 2). The results of this analysis suggested that general storage areas, such as linens and bedroom storage, and master bedroom closet space were important determinants of overall housing satisfaction.

Storage areas are a favored housing attribute. Overall, respondents were moderately to very satisfied with their current storage capabilities. Should CHIP decide to make changes to their floor plan designs, careful consideration should be made to maintain or increase storage space. Additionally, how the additional storage space is added becomes a critical question. If more square footage is added to individual spaces, then there is less concern that dissatisfaction with size of rooms would be triggered.

Specific Aspects of Size of Areas

The mean response for specific aspects of size of areas was tested. Overall, the respondents were moderately to very satisfied with the size of areas in their house. Respondents were most satisfied with the size of the master bedroom bathroom and least satisfied with the size of the other bedrooms. Respondents were moderately satisfied with the size of hallways, central hall

bathroom, kitchen, eating areas in the kitchen, living room and dining room and master bedroom.

Furthermore, the relationship between overall housing satisfaction with the interior of the respondents' housing and size of areas was tested (Hypothesis 3). The findings suggested that satisfaction with bedrooms, kitchen, and central hall bathroom contributed to explaining overall satisfaction with size of areas. The living room/dining area, eating area in the kitchen, hallways, and master bedroom bathroom were not significant predictors of satisfaction with size of areas.

If CHIP should consider making changes to floor plan designs, the findings from this analysis should be carefully considered. Reduction of space from one location to be added to another does not seem feasible, as this potentially would only shift satisfaction from one space to another. Anecdotally, homeowners have expressed their unhappiness with the size of other bedrooms and general living areas such as the eating area in the kitchen and the living room/dining. In addition, the second most popular comment included in response to Question 72 was that the interior of the house was too small (16%). Again, the most likely resolution to this issue is to increase the square footage of the house, if feasible.

Specific Aspects of Location of Rooms and Features

The mean response for specific aspects of location of rooms and features was tested. Overall, the respondents were very satisfied with the specific aspects of location of rooms and features in their house. With respect to the specific rooms and features aspects, respondents were most satisfied with the location of the master bedroom and least satisfied with the location of entrances into the house. Respondents were very satisfied with the location of the kitchen, central hall bathroom, master bedroom, living room and dining room, garage, and other bedrooms.

In addition, the relationship between overall housing satisfaction with the interior of the respondents' housing and location of rooms and features was tested (Hypothesis 4). These findings suggested that a variety of housing aspects contributed to explaining the overall satisfaction with location of rooms and features.

The overall opinion of location of rooms and features was the only overall variable that was not an important predictor of overall satisfaction. Although changes in the location of rooms and features could be made to increase the level of satisfaction of future homeowners, this is not an area of great concern. CHIP should at a minimum maintain the location of rooms and features in their floor plan design.

Specific Aspects of Housing Quality

The mean response for specific aspects of housing quality was tested. Respondents' opinions ranged from unsatisfied to very satisfied with specific aspects of housing quality. Overall, the respondents were moderately satisfied with housing quality aspects of their house. With respect to specific housing quality aspects, respondents were most satisfied with the quality of their water heater and least satisfied with the quality of their carpeting. Respondents were very satisfied with the quality of their heating, air and ventilation, and electrical systems. The were moderately satisfied with the quality of their range; bathrooms cabinets and fans; kitchen cabinets and countertops; lighting fixtures; interior construction; plumbing; windows; interior walls and building materials; interior and exterior doors; and interior paint. They were less than satisfied with their bathroom and kitchen flooring and carpeting.

The relationship between overall satisfaction with housing quality and specific aspects of housing quality was tested (Hypothesis 5). The results from this hypothesis testing suggested that both interior construction and finish work

were important variables for rural, self-help respondents when determining overall satisfaction.

Respondents commented on housing quality issues in various sections of the survey as well as during the focus group discussions. Housing quality issues can be a reflection of both problems inherent in the materials and equipment as well as problems that arise due to deferred maintenance. Since this program serves first-time homebuyers, the transition from renter to homeowner warrants special consideration. Pre- and post-purchase education plays an instrumental part in educating homeowners on the importance of continued maintenance and care of their homes. The longevity, value, and performance of materials and equipment are enhanced by homeowner maintenance.

Several respondents commented on condensation issues related to windows. Further investigation regarding this issue is warranted. Of primary concern is indoor air quality. The existence of moisture may lead to the growth of toxic molds that can be hazardous to the inhabitants, especially those susceptible to respiratory illness. Furthermore, the existence of moisture may also suggest that the homeowners are not utilizing their heating and cooling system properly. Again, the need for proper pre- and post-purchase education related to care, maintenance, and use of equipment is recommended.

Location of Subdivision

Hypothesis 6 dealt with overall housing satisfaction of respondents with respect to the subdivision in which the houses were located. The results of this hypothesis testing revealed two things. First, the subdivisions were generally homogeneous and therefore enabled the data to be aggregated. This demonstrated that the subdivisions were similar in design that enhanced the generalizability of the respondents' answers. Second, where respondents built their home was not a significant determining factor for overall satisfaction.

Several housing research studies have demonstrated that location or neighborhood satisfaction is a strong predictor of housing satisfaction (Combs & Vrbka, 1993; Morris & Winter, 1978). Clearly, location in one of the subdivisions did not influence respondents' overall satisfaction with the interior of their housing, a more narrowly defined satisfaction variable. Since the neighborhoods of CHIP housing are homogeneous, the variable does not represent a range of neighborhoods that would be useful as a predictor.

Number of Bedrooms and Bathrooms

Hypothesis 7 dealt with overall housing satisfaction with respect to number of bedrooms. The results of this hypothesis testing revealed two things. First, research has shown that number of bedrooms is a good indicator of overcrowding (Morris and Winter, 1978) and overcrowding is a common housing quality deficiency, especially in California. This finding suggested that generally speaking, the number of bedrooms and number of persons in the household were appropriately matched. Second, several persons who participated in the focus group discussions commented on bedrooms. Interestingly, the participants were not dissatisfied with the number of bedrooms, but rather were dissatisfied because the bedrooms were too small.

Hypothesis 8 dealt with overall housing satisfaction with respect to number of bathrooms. The results of this hypothesis testing suggested that number of bathrooms was not a significant determinate of overall housing satisfaction. The findings of this hypothesis testing was surprising given the numerous comments regarding the inadequate number of bathrooms during the focus group discussions, as well as comments listed in question 72. Although almost one-half of the homes reported having two and one-half bathrooms, participants in the focus groups were adamant that the number of bathrooms was inadequate for

the overall household size, especially households with young children and those with medical conditions.

Skills Learned During the Self-Help Process

Hypothesis 9 dealt with skills learned during the self-help training process and the respondents' subsequent completion of their own alterations and modifications. The results of this hypothesis testing revealed three things. First, the findings of this analysis were consistent with the research on repair, maintenance, and improvement activities by households with lower incomes. Parrott (1998) concluded that households with lower incomes were more likely to complete Do-It-Yourself activities. Second, the ability to complete the project was influenced, in whole or in part, by the skills learned while participating in the self-help training process. Last, the findings support Mendelsohn's (1977) research on the relationship between income level and a homeowner's occurrence of improvements. Mendelsohn concluded that the higher the income, the greater the probability improvements would be made. Overall, respondents' reported completing alterations or modifications that were rather simple and/or inexpensive, such as painting and installation of shelves or cabinets. This coincided with the limited incomes respondents had to expend on such activities. Overall, these findings suggested that both the skills learned during the self-help training and the likelihood of modifications or alterations being completed by respondents were correlated.

Alterations and Modifications

Hypothesis 10 tested the overall satisfaction with the interior of the respondents' housing in relation to respondents' completion of the alterations or modifications. The results of this analysis suggested that although respondents may have completed alterations or modifications, they were no more likely to be

satisfied with their interiors than respondents who performed no alterations or modifications. Furthermore, the relationship between income and occurrences of alterations or modifications was again supported by Mendolsohn's (1977) research that the higher the income, the greater the occurrence of improvements. Therefore, this finding substantiated that when housing satisfaction was attained, there was no need to engage in housing adjustment behavior (Morris & Winter,1978).

Demographic Characteristics

Hypothesis 11 tested the overall satisfaction of respondents in relation to specific demographic characteristics, specifically years of schooling, income, and household size. The results of this analysis indicated that none of these characteristics were significant in explaining overall housing satisfaction. Furthermore, this finding substantiated the homogeneous nature of the respondents and increased the confidence in generalizability of the findings.

Implications

The results of this research provide implications for design and policy development, as well as for the homeowners and self-help affordable housing developers. A discussion of those implications follows.

Two objectives of this research were to identify what factor(s) influence rural self-help homeowners' satisfaction with respect to housing quality and residential space plan design and what alterations or modifications (if any) may have affected satisfaction with housing quality and residential space plan design. The findings of this research indicated that with respect to total overall satisfaction with the interior of their housing, respondents were moderately satisfied.

Design Implications

Based upon the survey responses, a list of design recommendations is provided that, if implemented, may enhance future rural, self-help homeowners' satisfaction with the interior of their housing. It should be noted that these recommendations include "if feasible" as part of the recommendation. It is important to remember the suggested improvements will most likely add cost to the development of the house and may not be financially feasible for both the developer and homeowner.

Design Recommendations:

1. Although the findings indicated that number of bathrooms had no significant affect on overall satisfaction, all house plans should provide for a minimum of two bathrooms. This recommendation is based upon the results of the focus groups and comments made in the open-ended question (question 72). Large households, households with small children, and households with occupants with medical conditions, could benefit from a house plan that contains at least two bathrooms.
2. Room sizes were deemed too small. If feasible, both bedrooms and common areas (living room, bathroom, and kitchen) should be increased in size.
3. Interior paint surfaces were difficult to clean. At a minimum, semi-gloss paint should be specified for easier maintenance.
4. Many respondents commented on the durability and installation of the carpeting. If feasible, both the quality and installation of the carpeting should be improved. Another option would be to allow the homeowner the option of paying for an upgrade of

carpeting. This additional cost could be added to their mortgage loan or paid for as closing costs.

5. Many respondents commented on the durability and installation of vinyl flooring in their kitchens and bathrooms. If feasible, both the quality and installation of the vinyl flooring in the bathrooms and kitchen should be improved. Another option would be to allow the homeowner the option of paying for an upgrade of vinyl. This additional cost could be added to their mortgage loan or paid for as closing costs.
6. Respondents commented on the poor distribution of heating and air conditioning throughout their houses. If feasible, the number of air distribution vents should be increased throughout the house.
7. Respondents commented on the lack of fans or poor performance of fans in the bathrooms. If feasible, bathroom fans should be installed in every bathroom at a minimum and the quality of the product and installation should be improved.
8. Respondents commented on the quality of the windows, especially problems with moisture. If feasible, the quality of the window frames (better seal) and their installation should be improved.
9. Respondents indicated storage areas were an important determinate of overall housing satisfaction with their interiors. Respondents indicated there was a need for more storage in the bathrooms. If feasible, more cabinet space in the bathroom should be provided.

Policy Implications

Rural Development has created its own design standards by which the development of the rural self-help houses under investigation were planned and constructed. These design standards are specific to both exterior and interior features. The guidelines set minimum and maximum restrictions by which single family, new construction housing is created utilizing Rural Development funding.

Post-Occupancy Evaluations of houses financed in whole or in part with Rural Development funding should be evaluated as a means of assessing whether or not their guidelines enhance or detract from the livability and satisfaction of the clients they serve. For example, research into the basic space requirements for bedrooms could verify whether the minimum requirements are still valid in today's households. Although these houses are intended to be modest in design and are starter homes for low to very-low income borrowers, an analysis of the implementation of these guidelines is worthy of consideration. Minor changes to the design restrictions may prove to increase the satisfaction of homeowners, thus enhancing the desirability of the self-help program.

Homeowner and Self-Help Developer Implications

The information gleaned from this research may be useful to the professionals who develop rural, self-help housing as well as those who purchase a rural, self-help house. Post-occupancy evaluations can be instrumental in measuring whether or not a design process and product performed as they were intended to perform.

The results from this research may be very beneficial for future developments that Community Housing Improvement Program, Incorporated (CHIP) plans and implements. If CHIP retains the design elements that homeowners were satisfied with and can improve one or more of the characteristics that homeowners were dissatisfied with, the end product may be

significantly improved. Again, changes need to be both economically feasible as well as meeting the minimum and maximum restrictions dictated by Rural Development.

Although this research established that the homeowners who participated in this survey were moderately to very satisfied with their housing quality and residential space plan design, application of one or more of the design recommendations might assist in increasing the satisfaction of future rural, self-help homeowners. Again, consideration should be given to whether or not potential added costs to provide these changes would ultimately enhance resident's overall satisfaction with the interior of their housing.

Although the respondents participated in self-help activities, many commented that they had primarily learned only basic home maintenance skills such as painting and caulking. Housing quality and satisfaction with the performance and longevity of a materials and/or equipment is due in part to the care and maintenance on the part of the homeowner.

Some respondents' dissatisfaction with the interior of their housing may have been caused in part or in whole by the respondents' lack of proper care and maintenance of materials and equipment. Pre- and post-purchase education workshops could be a very important component to help increase homeowners' satisfaction with the interior of their housing. Educating homeowners about the importance of maintenance (performance, economic value and savings) as well as how to do the maintenance (skills and tools) seems a vital component to increasing homeowner satisfaction. Workshop topics could include a discussion of: keeping rain gutters clear of debris; vacuuming the coils behind the refrigerator; changing HVAC filters regularly (air quality, cost-savings, and equipment performance); using the range vent to prevent too much condensation (moisture build-up that can cause molding); replacement reserves for anticipated

and unexpected failure of equipment or materials (replace vinyl flooring and carpet); and regular vacuuming of carpets to enhance longevity.

Another bonus of providing homeowners with knowledge and skills would be the potential reduction in call-backs to both the subcontractors and CHIP. Much time and money is devoted to addressing performance or quality issues after the subdivisions are completed. Better informed and skilled homeowners may reduce the need for agency visitations and repairs.

Recommendations for Further Research

Based upon the results of this research, the following items are suggested for future research consideration.

1. Given that this was a post-occupancy evaluation, future analysis of rural, self-help housing with respect to residential space plan design and housing quality should begin at the start of development so that the results can be evaluated based on established objectives.
2. Several participants in the focus groups and survey made comments concerning the characteristics of the exterior of their houses. Knowledge about homeowners' satisfaction with the exterior of their houses would provide a broader understanding of their satisfaction with their entire house.
3. This survey requested much information from the participants. Dividing the topic of housing quality and residential space plan design into two different survey instruments would be a better format for more complete information on housing satisfaction of rural, self-help homeowners. Furthermore, this format may reduce

the length of the original survey that should enhance the desirability for participants who complete the survey.

4. Self-help construction is not limited to just rural areas; housing developers construct similar developments in urban areas as well. Testing of this survey instrument in an urban setting to determine if there are any differences in satisfaction between rural and urban self-help homeowners is warranted.
5. Future research should consider identifying which specific house plan a respondent owned. This process may help identify which house plans were more likely to satisfy.
6. Future research should focus on whether or not homeowners would be willing to pay more for upgrades in materials such as vinyl flooring, carpeting ,or distribution vents for heating and cooling.
7. Refinement of the survey instrument so that other rural, self-help organizations could use it to evaluate the satisfaction of their clients is recommended.

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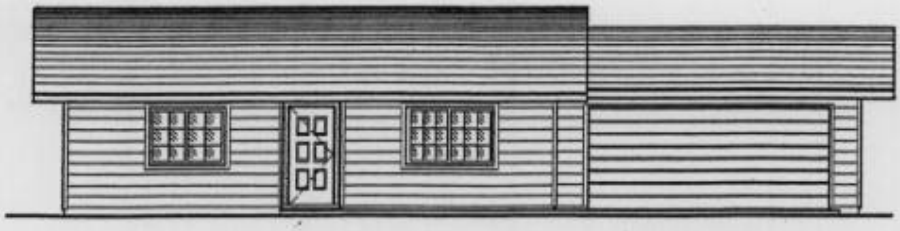
APPENDIX A

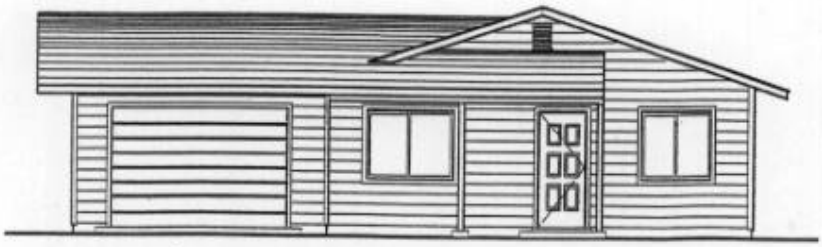
Floor plans (2, 3, 4, and 5 bedroom)

2 BEDROOM/1 BATH
LIVING AREA 849 SQ. FT.
GARAGE 440 SQ. FT.



MODEL #849-2

3 BEDROOM/1 BATH
LIVING AREA 1000 SQ. FT.
GARAGE 300 SQ. FT.



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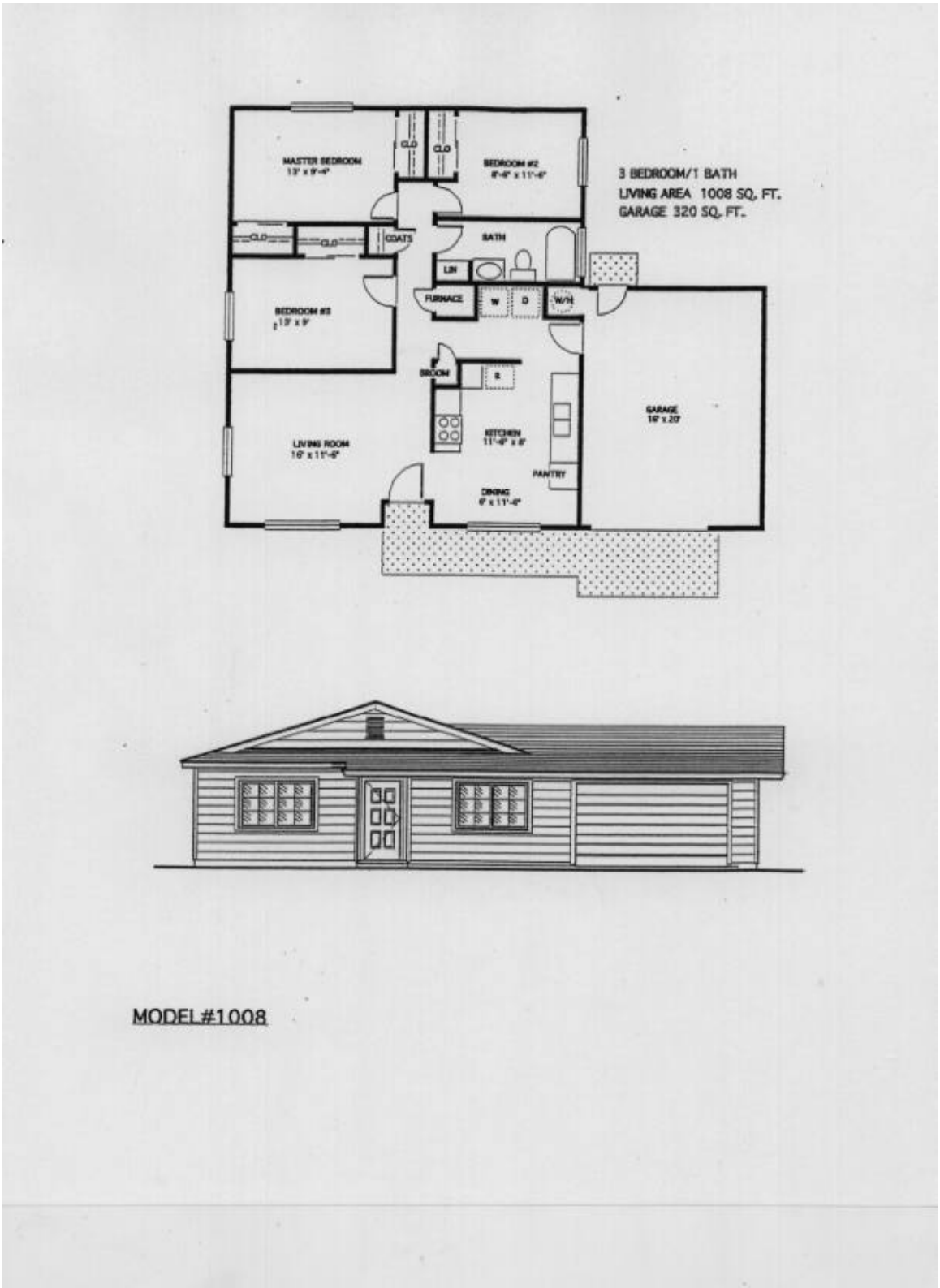
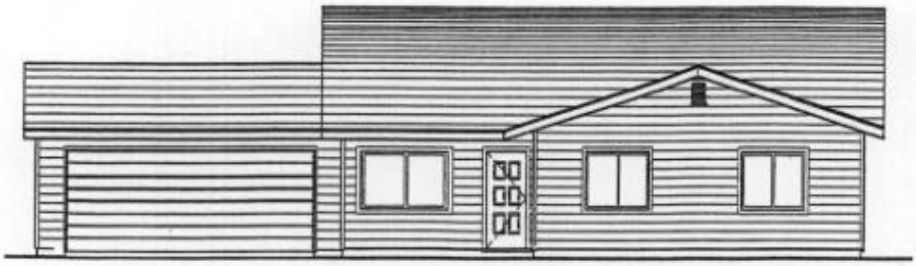
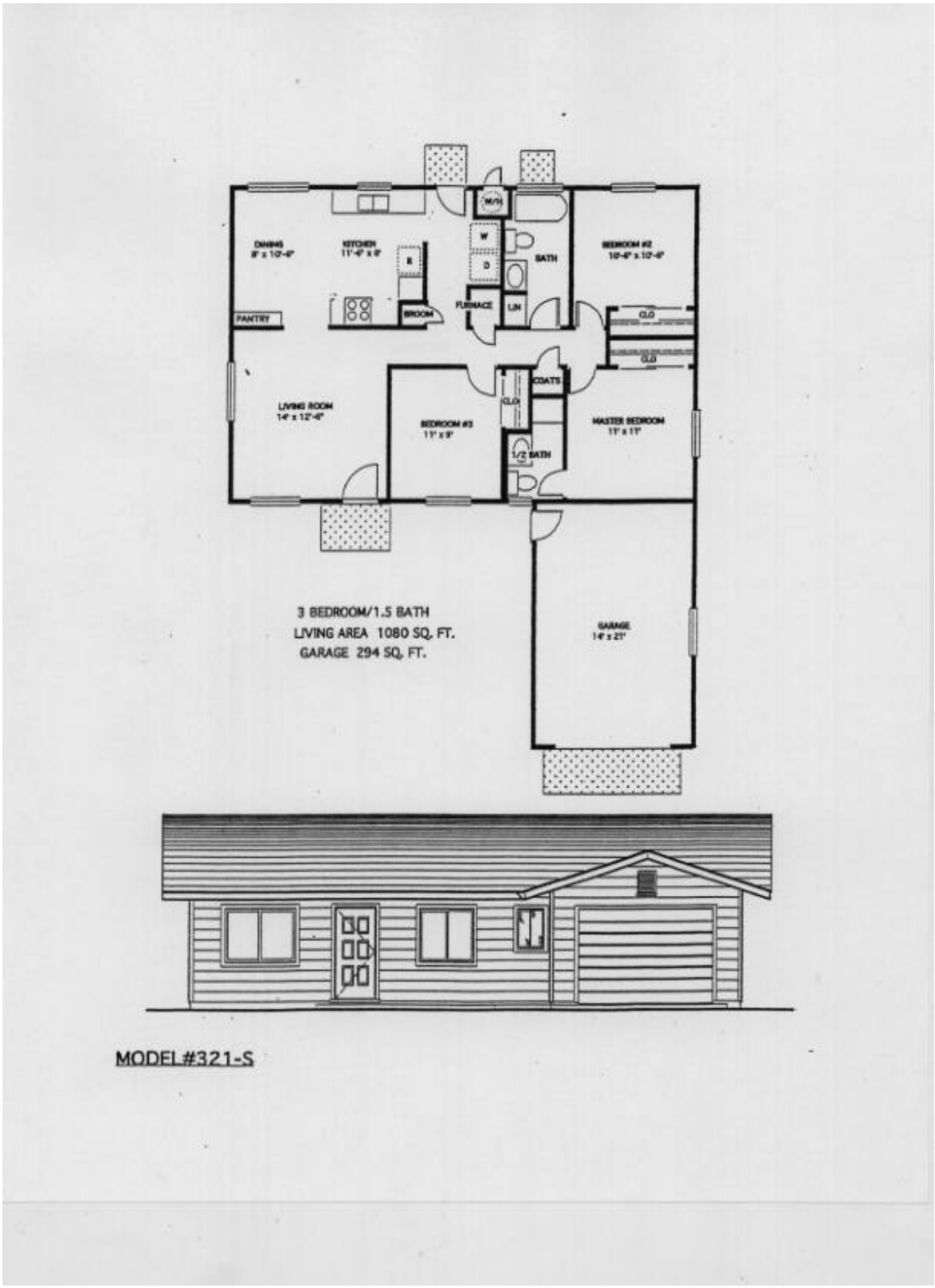

MASTER BEDROOM
13' x 9'-4"
CLO
CLO
BEDROOM #2
8'-6" x 11'-6"
3 BEDROOM/1 BATH
LIVING AREA 1008 SQ. FT.
GARAGE 320 SQ. FT.
CLO
CLO
COATS
BATH
LIN
FURNACE
W
D
W/H
BEDROOM #3
13' x 9'
BROOM
R
GARAGE
14' x 20'
LIVING ROOM
16' x 11'-6"
KITCHEN
11'-6" x 8'
PANTRY
DINING
8' x 11'-6"
MODEL#1008

3 BEDROOM/2 BATH
LIVING AREA 1052.5 SQ. FT.
GARAGE 440 SQ. FT.

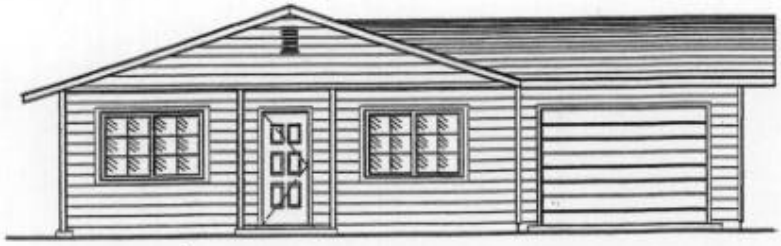


MODEL #B –

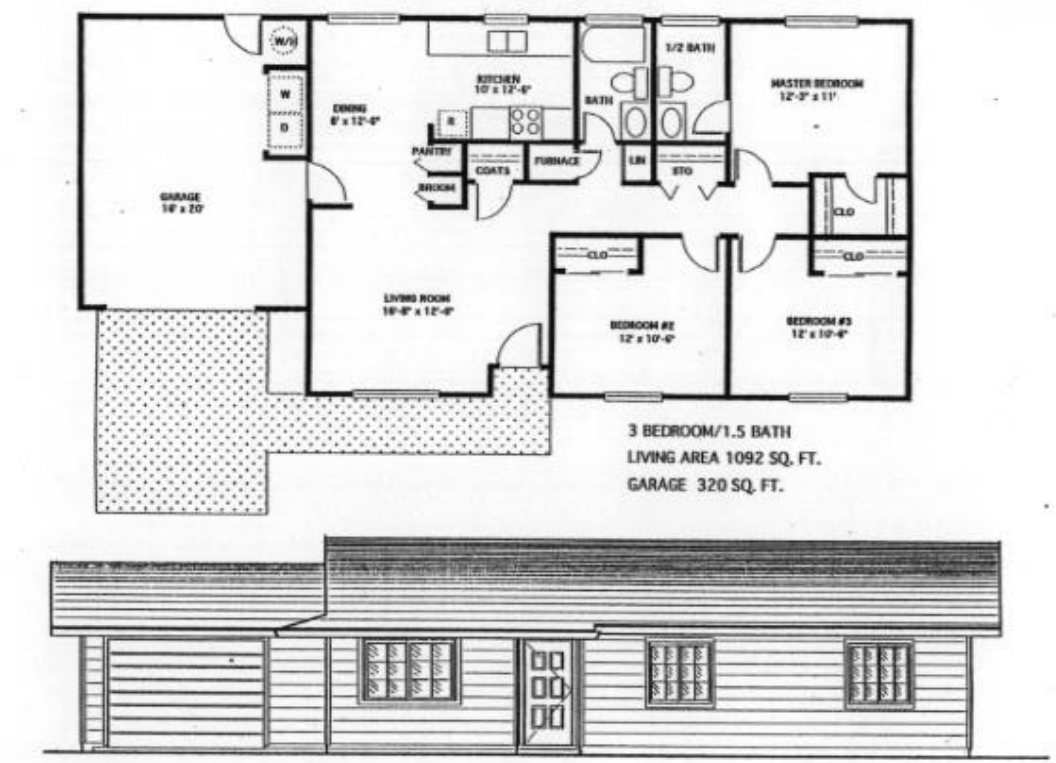

DINING
8' x 10'-6"
KITCHEN
11'-6" x 8'
R
PANTRY
BROOM
W
D
W/H
BATH
FURNACE
LIN
BEDROOM #2
10'-6" x 10'-6"
CLO
CLO
COATS
CLO
LIVING ROOM
14' x 12'-6"
BEDROOM #3
11' x 9'
1/2 BATH
MASTER BEDROOM
11' x 11'
3 BEDROOM/1.5 BATH
LIVING AREA 1080 SQ. FT.
GARAGE 294 SQ. FT.
GARAGE
14' x 21'

MODEL#321-S

3 BEDROOM/1.5 BATH
LIVING AREA 1080 SQ. FT.
GARAGE 280 SQ. FT.



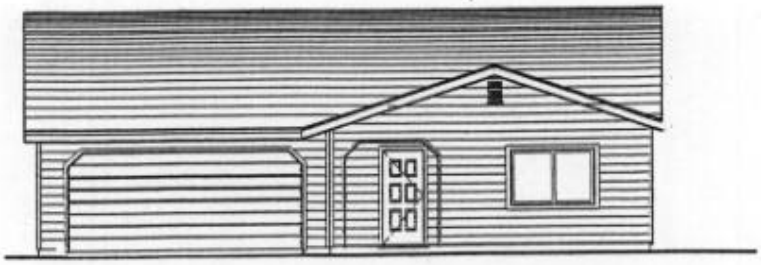
MODEL #321-N



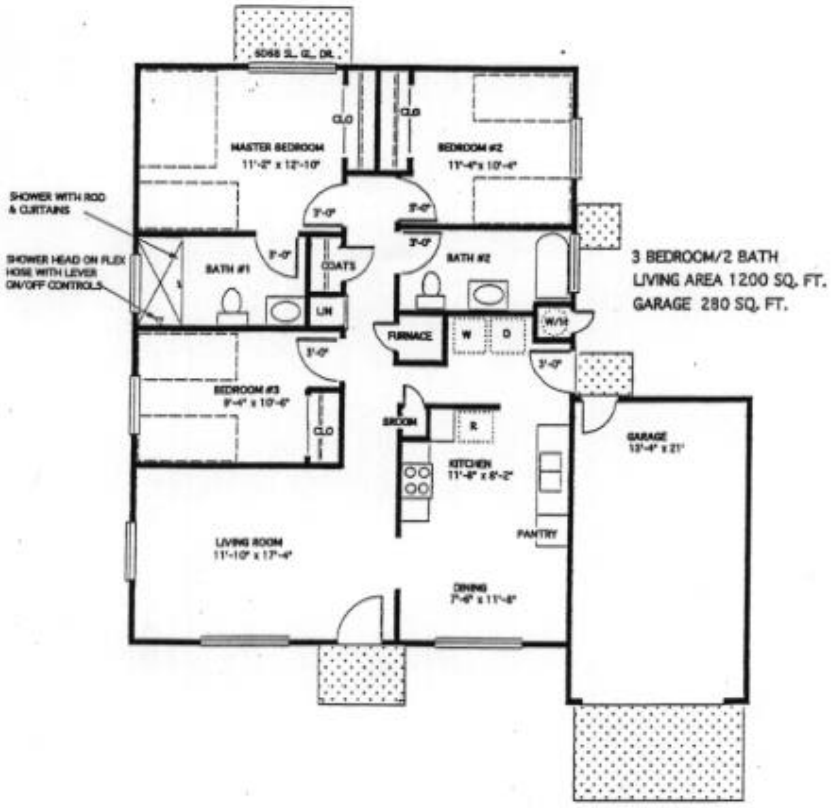
3 BEDROOM/1.5 BATH
LIVING AREA 1092 SQ. FT.
GARAGE 320 SQ. FT.

MODEL#1092

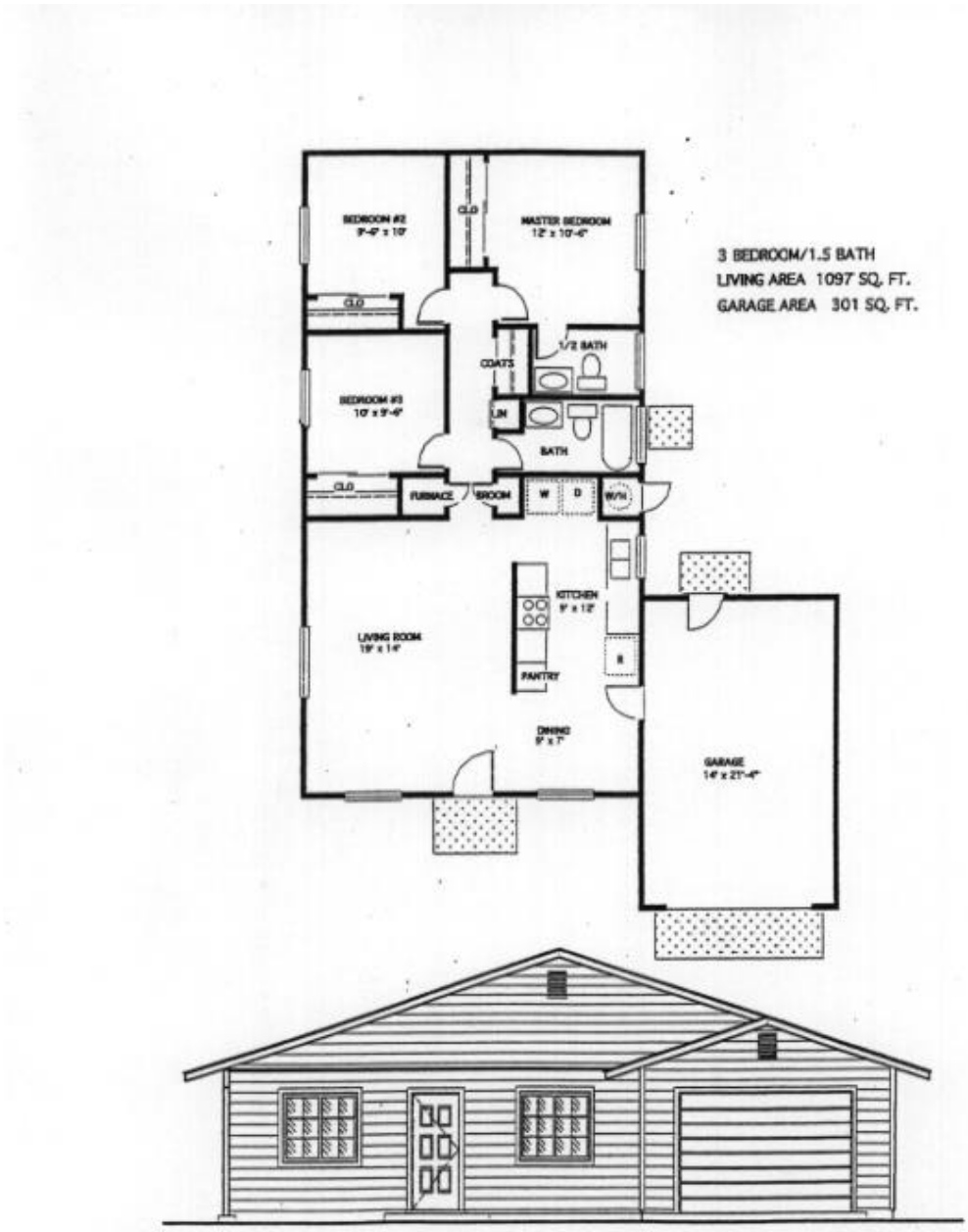
3 BEDROOM/2 BATH
LIVING AREA 1182 SQ. FT.
GARAGE 424 SQ. FT.



MODEL#1b



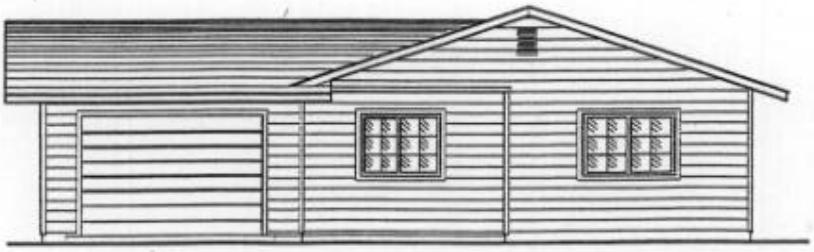
MODEL #321-N H/C



3 BEDROOM/1.5 BATH
LIVING AREA 1097 SQ. FT.
GARAGE AREA 301 SQ. FT.

MODEL #1097

4 BEDROOM/2 BATH
LIVING AREA 1200 SQ. FT.
GARAGE 300 SQ. FT.



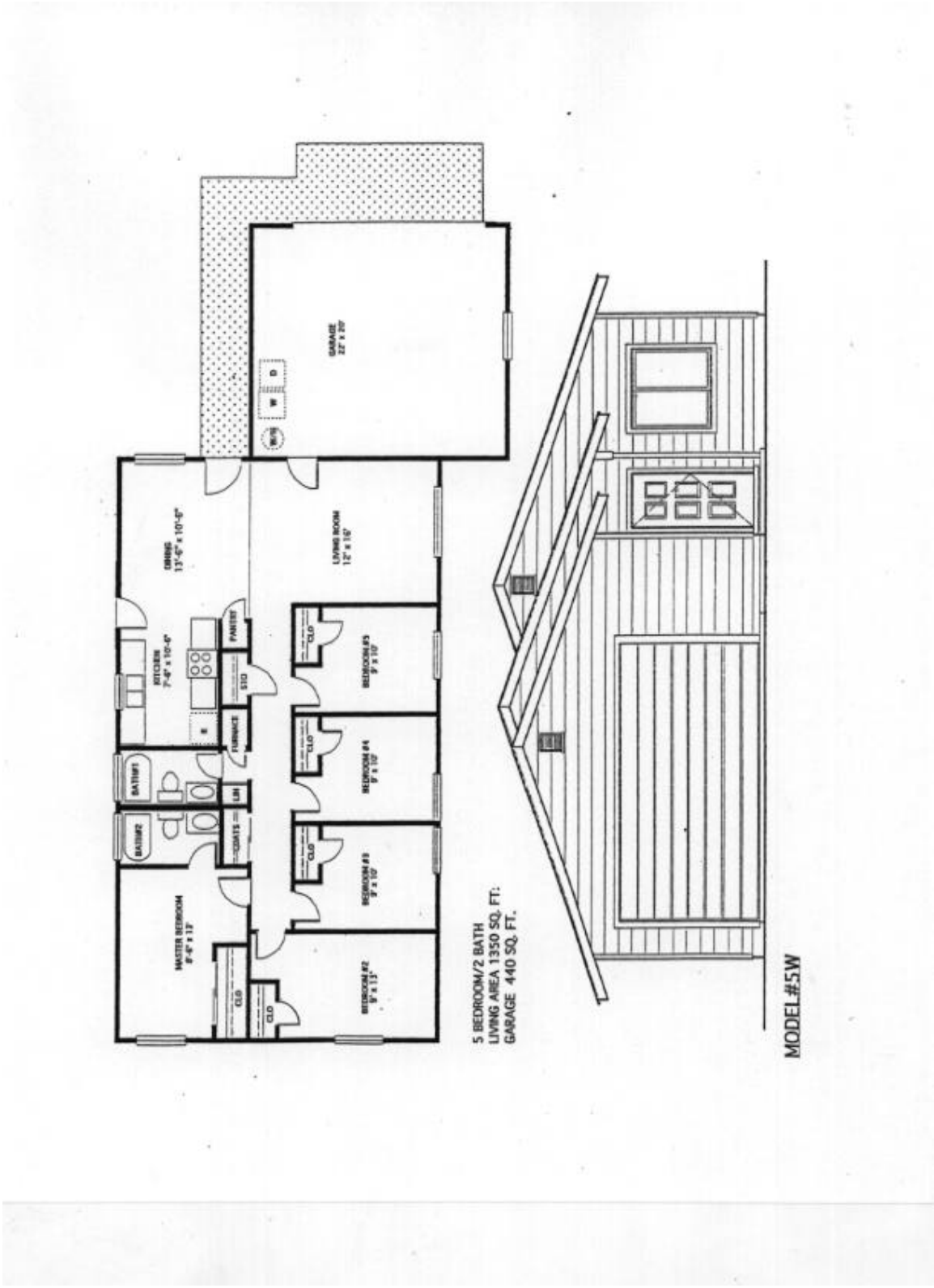
MODEL#422-N

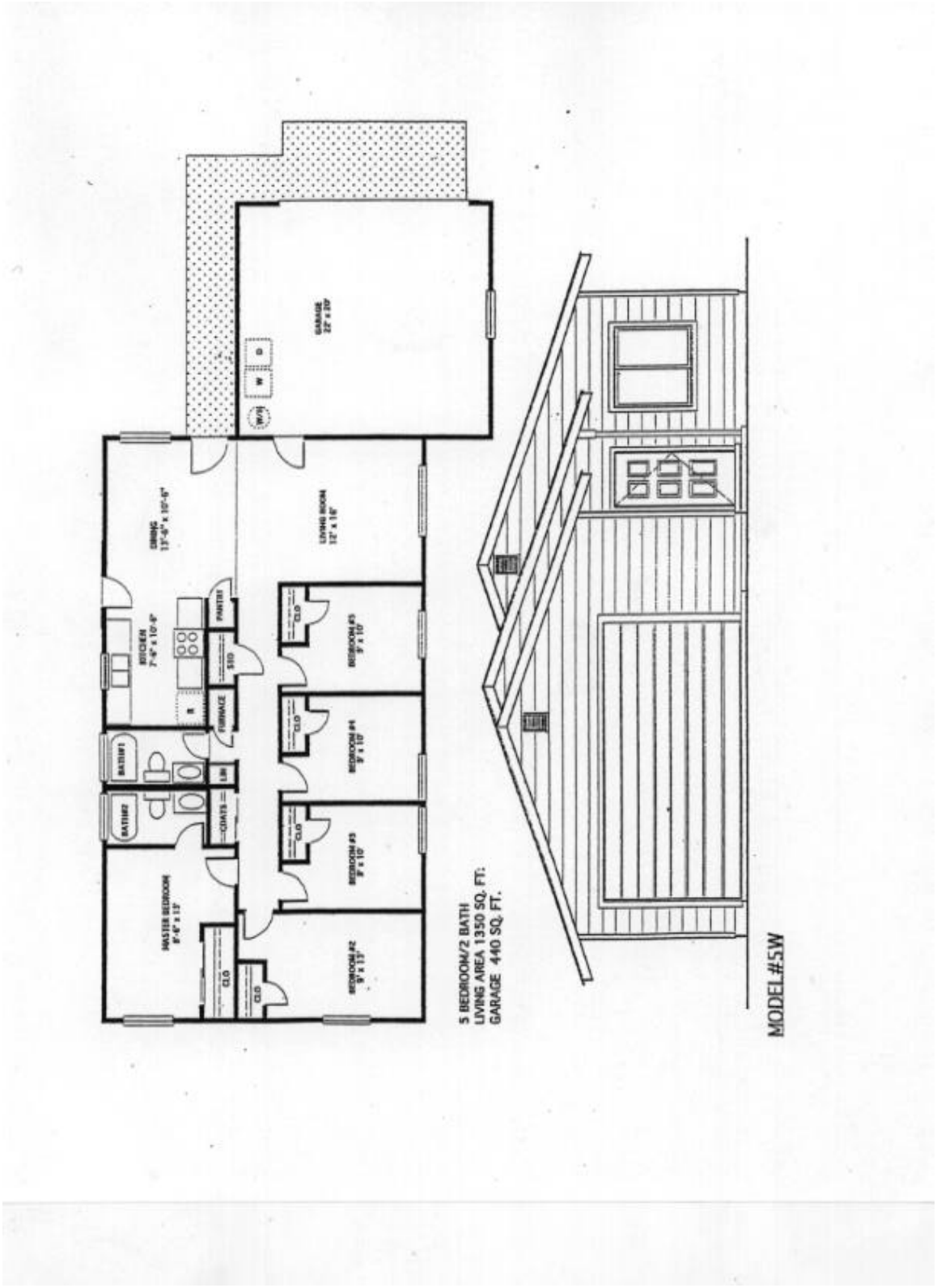
4 BEDROOM/2 BATH
LIVING AREA 1232 SQ. FT.
GARAGE 320 SQ. FT.

MODEL#1232-C

4 BEDROOM/2 BATH
LIVING AREA 1288 SQ. FT.
GARAGE AREA 440 SQ. FT.

MODEL #1288- HOFF SUBDIVISION

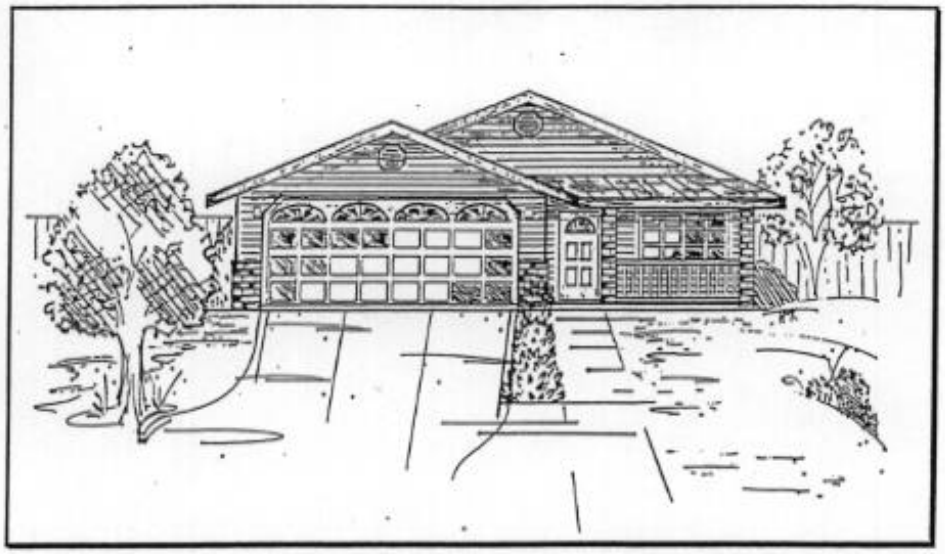

5 BEDROOM/2 BATH
LIVING AREA 1350 SQ. FT.
GARAGE 440 SQ. FT.
MODEL#5W


5 BEDROOM/2 BATH
LIVING AREA 1350 SQ. FT.
GARAGE 440 SQ. FT.
MODEL#5W

APPENDIX B

Final Survey Instrument: English Version

Final Survey Instrument: Spanish Version



Rural Self-Help Housing: A Case Study of Homeowners' Satisfaction with Residential Space Plan Design & Housing Quality

This questionnaire is part of a research study being conducted by Kris Zappettini (PhD Candidate) through Virginia Polytechnic Institute and State University (Virginia Tech) with the support of Community Housing Improvement Program, Inc. (CHIP) and California State University Chico, Art Department.

January, 2000

You have been selected to participate in a study which focuses on the satisfaction of CHIP homeowners in the rural areas of Butte, Glenn, and Shasta Counties. The purpose of this study is to understand what factors influence your housing satisfaction with respect to residential space plan design and housing quality.

Your response to this questionnaire is greatly appreciated and will be beneficial to CHIP when planning future Rural Self-Help subdivisions. *This survey is confidential and your name will not be associated with it.*

This survey should be filled out by one of the owners. Please take a few minutes to fill out the questionnaire. Please answer **every** question. When you finish, put the questionnaire in the attached, addressed and pre-paid envelope and mail it. *Thank you!*

Residential Space Plan Design:

The following questions are statements about the **STORAGE** areas in your house. The number “1” indicates "Very Dissatisfied" and the number “5” indicates "Very Satisfied". Please circle the number that best reflects your satisfaction with **storage** in these areas:

	Very Dissatisfied				Very Satisfied	Not Applicable
1. Storage in the master bedroom bathroom	1	2	3	4	5	9
2. Storage in the central hall bathroom	1	2	3	4	5	
3. Storage in the hall closet	1	2	3	4	5	9
4. Closet space in the master bedroom	1	2	3	4	5	
5. Closet space in the other bedrooms	1	2	3	4	5	
6. Storage space in the kitchen	1	2	3	4	5	
7. Storage space for cleaning equipment & supplies	1	2	3	4	5	
8. Storage space for household linens	1	2	3	4	5	
9. Storage space in the front entry	1	2	3	4	5	9
10. **Overall** opinion of storage space in your house	1	2	3	4	5	

The following questions are statements about the **SIZE** of areas in your house. The number “1” indicates "Very Dissatisfied" and the number “5” indicates "Very Satisfied". Please circle the number that best reflects your satisfaction with **size** of areas in your house:

	Very Dissatisfied				Very Satisfied	Not Applicable
11. Size of the master bedroom	1	2	3	4	5	
12. Size of the master bedroom bathroom	1	2	3	4	5	9
13. Size of the other bedrooms	1	2	3	4	5	
14. Size of the kitchen	1	2	3	4	5	
15. Size of the eating area in the kitchen	1	2	3	4	5	9
16. Size of the living room / dining room	1	2	3	4	5	
17. Size of the central hall bathroom	1	2	3	4	5	
18. Size of hallways	1	2	3	4	5	
19. **Overall** opinion of the size of rooms in your house	1	2	3	4	5	

The following questions are statements about the **LOCATION** of rooms and features in your house. The number “1” indicates "Very Dissatisfied" and the number “5” indicates "Very Satisfied". Please circle the number that best reflects your satisfaction with **location** of rooms/features in your house:

	Very Dissatisfied				Very Satisfied	Not Applicable
20. Location of the master bedroom	1	2	3	4	5	9
21. Location of the master bathroom	1	2	3	4	5	9
22. Location of the other bedrooms	1	2	3	4	5	
23. Location of central hall bathroom	1	2	3	4	5	
24. Location of kitchen	1	2	3	4	5	
25. Location of living room / dining room	1	2	3	4	5	
26. Location of windows in the house	1	2	3	4	5	
27. Location of garage	1	2	3	4	5	9
28. Location of entrances into house	1	2	3	4	5	
29. **Overall** opinion of the location of rooms/features in your house	1	2	3	4	5	

ALTERATIONS/MODIFICATIONS

The following questions are statements about the **alterations** and/or **modifications** to your house. Please circle the number that best reflects the **alterations** and/or **modifications** (if applicable) that your have done to your house:

30. Have you made any interior alterations and/or modifications to the interior of your house? **IF NO, ANSWER QUESTION #31 AND THEN MOVE TO QUESTION #35.**

1. YES
2. NO

31. If you have **NOT** made interior alterations and/or modifications, please describe why not:

_____

_____

_____

32. If you have made interior alterations and/or modifications, please describe what you changed:

_____

_____

_____

33. Did you do the interior alterations and/or modifications yourself or did you hire someone to do the work for you?

1. Did the work myself
2. Hired someone to do the work

34. If you did the alterations and/or modifications yourself, did you use the training you received while building your self-help house?

1. YES
2. NO
3. NOT APPLICABLE

HOUSING QUALITY

The following questions are statements about the **quality** of your house. The number “1” indicates "Very Dissatisfied" and the number “5” indicates "Very Satisfied". Please circle the number that best reflects your satisfaction with the **quality** of your house:

	Very Dissatisfied				Very Satisfied	If Dissatisfied Briefly Explain Why
35. Quality of windows	1	2	3	4	5	_____
36. Quality of exterior and interior doors	1	2	3	4	5	_____
37. Quality of interior walls	1	2	3	4	5	_____
38. Quality of interior paint	1	2	3	4	5	_____
39. Quality of kitchen cabinets	1	2	3	4	5	_____
40. Quality of bathroom cabinets	1	2	3	4	5	_____
41. Quality of carpeting	1	2	3	4	5	_____
42. Quality of flooring in bathrooms	1	2	3	4	5	_____
43. Quality of flooring in kitchen	1	2	3	4	5	_____
44. Quality of kitchen countertops	1	2	3	4	5	_____
45. Quality of range (oven/burners)	1	2	3	4	5	_____
46. Quality of water heater	1	2	3	4	5	_____
47. Quality of heating unit	1	2	3	4	5	_____
48. Quality of air conditioner	1	2	3	4	5	_____
49. Quality of air distribution (vents)	1	2	3	4	5	_____
50. Quality of interior construction	1	2	3	4	5	_____
51. Quality of interior building materials	1	2	3	4	5	_____
52. Quality of plumbing	1	2	3	4	5	_____
53. Quality of electrical	1	2	3	4	5	_____
54. Quality of built-in lighting fixtures	1	2	3	4	5	_____
55. Quality of bathroom fans	1	2	3	4	5	_____
56. **Overall** satisfaction with the interior quality of your house	1	2	3	4	5	_____

REPAIR AND MAINTENANCE

The following questions are about the **repair and maintenance** of your house. Please briefly describe your experiences with the **repair and maintenance** of your house:

57. To what extent did the Self-Help Program teach you the necessary skills so that you can do repairs on your house? (i.e., leaky faucet, crack in water pipe)

_____
_____
_____
_____

58. To what extent did the Self-Help Program teach you the necessary skills so that you can do maintenance on your house? (i.e., caulking, painting)

_____
_____
_____
_____

59. Does someone in your household do the repairs and/or maintenance of your house? Check the appropriate answer.

1. _____ Never
2. _____ Sometimes
3. _____ Always

HOUSING INFORMATION:

Please check the number that best reflects your answer. **Choose only one answer.**

60. Check the year that you completed your house:

1. _____ 1990
2. _____ 1991
3. _____ 1992
4. _____ 1993
5. _____ 1994
6. _____ 1995
7. _____ 1996

61. Check the name of the subdivision where you live:

1. ____ Spring Hill
2. ____ Brophy
3. ____ Western Elm
4. ____ Chadwick Estates
5. ____ Cody Subdivision
6. ____ Wiggins Subdivision
7. ____ Hoff Subdivision, Units 1 & 2
8. ____ Greenwood Estates
9. ____ John F.Kennedy
10. ____ Hoff Subdivision, Units 3 & 4
11. ____ Don't Remember

62. Check how many bedrooms your house had at time of purchase: _____ 2 _____ 3 _____ 4 _____ 5 ____

63. Check how many bathrooms your house had at time of purchase: _____ 1.5 _____ 2 _____ 2.5 ____

64. Please circle your **OVERALL** satisfaction with the interior of your house:

Very Dissatisfied				Very Satisfied
1	2	3	4	5

Demographic Information:

This is the last section of the questionnaire. The next set of questions will pertain to you personally. All the information in this questionnaire is *confidential*. Please choose the most appropriate answer.

65. Check if you are female or male:

1. _____ Female
2. _____ Male

66. What is your age?_____

67. Check how many years of schooling you have **COMPLETED**:

1. _____ grade school (grades 1-6)
2. _____ middle school (grades 7, 8 & 9)
3. _____ high school (grades 10-12)
4. _____ vocational school certificate
5. _____ community college-associate degree
6. _____ under graduate college degree
7. _____ graduate college degree

68. Check which of the following best describes your annual **household** income(gross income):

1. _____ less than $10,000
2. _____ $10,000-$14,999
3. _____ $15,000-$19,999
4. _____ $20,000-$29,999
5. _____ $30,000-$39,999
6. _____ $40,000-$49,999
7. _____ Over $50,000 per year

69. Who lives in this house with you? **Please check all that apply**:

1. _____ children
2. _____ parents
3. _____ spouse
4. _____ non relatives
5. _____ brothers
6. _____ sisters
7. _____ other relatives (grandparents, cousins, nieces, nephews, aunts, uncles, etc.)

70. How many people live in your house including yourself? _____ (# of people)

71. Check your nationality/ethnic background:

1. _____ Hispanic
2. _____ Asian
3. _____ Caucasian
4. _____ Afro-American
5. _____ Pacific Islander
6. _____ Other

72. You many use the following space to add any additional comments about the interior of your house.

_____

_____

_____

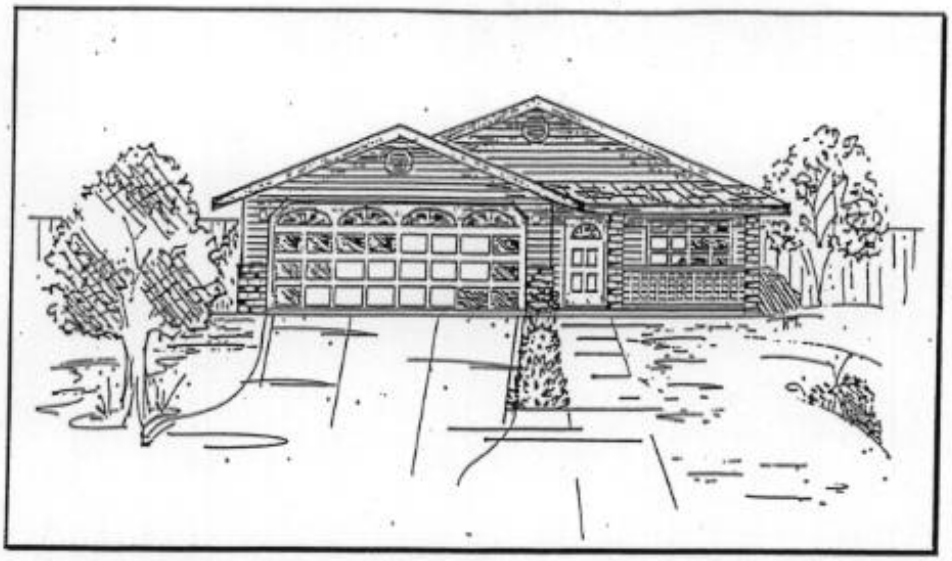
_____

THANK YOU FOR YOUR HELP!

Please place your completed questionnaire in the postage paid self-addressed envelope.

If you lose the envelop, mail to:

Community Housing Improvement Program, Inc.
Attention: Kris Zappettini
1001 Willow Street
Chico, CA 95928



Programa de Vivienda Rural de Ayuda Mutua: Un Estudio Sobre la Satisfacción de los Dueños de Casa con el Diseño del Plan de Espacio Residencial y la Calidad de Vivienda

Este cuestionario es parte de un estudio de investigación conducido por Kris Zappettini (candidata para un PhD) a través de Virginia Polytechnic Institute y State University (Virginia Tech) con el apoyo de Community Housing Improvement Program, Inc. (CHIP) y California State University Chico, Departamento de Arte.

Eñero, 2000

Usted ha sido seleccionado para participar en un estudio que enfoca el nivel de satisfacción de los dueños de casa en CHIP en las areas rurales de los condados de Butte, Glenn, y Shasta. El propósito de este estudio es entender que factores influyen en la satisfacción que su casa le proporciona con respeto al diseño del plan de espacio residencial y la calidad de la vivienda.

Sus respuestas a este cuestionario son grandemente apreciadas y serán beneficiosas para CHIP en la planifacación de futuras viviendas rurales de ayuda mutua. *Esta encuesta es confidencial y su nombre no será asociado con la misma.*

Por favor, tome unos momentos para completar el cuestionario. Responda a **cada** pregunta. Cuando termine póngalo en el sobre con la dirección ya escrita y la estampa prepagada adjunto y envíelo. *¡Muchas gracias!*

Diseño del Plan del Espacio Residencial:

Las siguientes preguntas se refieren a las areas de **ALMACEN** de su casa. El "#1" indica "Muy Descontento" y el "#5"indica "Muy Satisfecho". Por favor encierre en un círculo el número que mejor refleja su satisfacción con las areas de **almacen.**

		Muy Descontento			Muy Satisfecho		No Es Aplicable
1.	Almacen en el baño del cuarto principal	1	2	3	4	5	9
2.	Almacen en el baño del pasillo	1	2	3	4	5	
3.	Almacen en el closet del pasillo	1	2	3	4	5	9
4.	Espacio del closet del pasillo	1	2	3	4	5	
5.	Espacio del closet en los otros cuartos	1	2	3	4	5	
6.	Espacio para almacen en la cocina	1	2	3	4	5	
7.	Espacio para almacen de equipo de limpieza y vivieres	1	2	3	4	5	
8.	Espacio de almacen para toallas y sábanas	1	2	3	4	5	
9.	Espacio para almacen en el closet de la entrada principal	1	2	3	4	5	9
10.	En resumen su opinión del espacio para almacen en su casa	1	2	3	4	5	

Las siguientes preguntas se refieren al **TAMANO** de las areas de su casa. El "#1" indica "Muy Descontento" y el "#5" indica "Muy Satisfecho." Por favor encierre en un círculo el número que mejor refleja su satisfacción con el tamaño de las areas de su casa:

		Muy Descontento			Muy Satisfecho		No Es Aplicable
11.	Tamaño del cuarto principal	1	2	3	4	5	
12.	Tamaño del baño del cuarto principal	1	2	3	4	5	9
13.	Tamaño de los otros cuartos	1	2	3	4	5	
14.	Tamaño de la cocina	1	2	3	4	5	
15.	Tamaño del comedor de la cocina	1	2	3	4	5	9
16.	Tamaño de la sala/comedor	1	2	3	4	5	
17.	Tamaño del baño en el pasillo central	1	2	3	4	5	
18.	Tamaño de los pasillos	1	2	3	4	5	
19.	En resumen su opinión del tamaño de los cuartos de su casa	1	2	3	4	5	

Las siguientes preguntas se refieren a la **LOCALIZACION** de los cuartos/características en su casa. El "#1" indica "Muy Descontento" y el "#5" indica "Muy Satisfecho." Por favor encierre en un círculo el número que mejor refleja su satisfacción con la **localización** de los cuartos/características en su casa:

		Muy Descontento				Muy Satisfecho	No Es Aplicable
20.	Localización del cuarto principal	1	2	3	4	5	9
21.	Localización del baño del cuarto principal	1	2	3	4	5	
22.	Localización de los otros cuartos	1	2	3	4	5	
23.	Localización del baño del pasillo central	1	2	3	4	5	
24.	Localización de la cocina	1	2	3	4	5	
25.	Localización de la sala/comedor	1	2	3	4	5	
26.	Localización de las ventanas en la casa	1	2	3	4	5	
27.	Localización del garaje	1	2	3	4	5	9
28.	Localización de las entradas de la casa	1	2	3	4	5	
29.	En resumen su opinión de la localizacion de los cuartos/características en su casa	1	2	3	4	5	

ALTERACIONES/MODIFICACIONES

Las siguientes preguntas se refieren a las **alteraciones/modificaciones** en su casa. Por favor responda en la manera que mejor refleja las **alteraciones/modificaciones** que usted ha hecho en su casa:

30. ¿Ha hecho alguna alteración/modificación al interior de su casa? **SI LA RESPUESTA ES NO, CONTESTE LA PREGUNTA #31 Y DESPUES CONTESTE LA PREGUNTA #35.**
    1. SI
    2. NO

31. Si **NO** ha hecho alteraciones/modificaciones, por favor describa por que no:

_____

_____

_____

32. Si ha hecho alteraciones/modificaciones, por favor describa que cambió:

_____

_____

_____

33. ¿Las alteraciones/modificaciones en el interior las hizo usted mismo o empleó a alguien para hacerlo?
    1. Yo mismo hice el trabjo
    2. Empleé a alguien para que haga el trabajo

34. Si usted mismo hizo las alteraciones/modificaciones, ¿usó el entrenamiento recibido mientras construía su casa conayuda-mutua?
    1. SI
    2. NO
    3. NO APLICABLE

CALIDAD DE LA CASA

Las sigientes preguntas se refieren a **la calidad** de su casa. El "#l" indica "Muy Descontento" y el "#5" indica "Muy Satisfecho." Por favor encierre en un círculo el nùmero que mejor refleja su satisfacción con la calidad de su casa:

		Muy Desconte				Muy Satisfecho	Si Muy Descontento Explique Brevemente Porque
35.	Calidad de las ventanas	1	2	3	4	5	_____
36.	Calidad de las puertas exteriores e interiors	1	2	3	4	5	_____
37.	Calidad de las paredes interiores	1	2	3	4	5	_____
38.	Calidad de la pintura interior	1	2	3	4	5	_____
39.	Calidad de los anaqueles de la cocina	1	2	3	4	5	_____
40.	Calidad de los anaqueles del baño	1	2	3	4	5	_____
41.	Calidad de las alfombras	1	2	3	4	5	_____
42.	Calidad del piso en los baños	1	2	3	4	5	_____
43.	Calidad del piso en la cocina	1	2	3	4	5	_____
44.	Calidad de las tableras en la cocina	1	2	3	4	5	_____
45.	Calidad del horno	1	2	3	4	5	_____
46.	Calidad del calentador de agua	1	2	3	4	5	_____
47.	Calidad de la califacción	1	2	3	4	5	_____
48.	Calidad del aire acondicionado	1	2	3	4	5	_____
49.	Calidad de la distribución del aire	1	2	3	4	5	_____
50.	Calidad de la construcción interior	1	2	3	4	5	_____
51.	Calidad de las materiales de construcción en el interior	1	2	3	4	5	_____
52.	Calidad de la plomería	1	2	3	4	5	_____
53.	Calidad de las instalaciones eléctricas	1	2	3	4	5	_____
54.	Calidad de las luces	1	2	3	4	5	_____
55.	Calidad de los ventiladores del baño	1	2	3	4	5	_____
56.	En resumen su satisfacción con la calidad del interior de su casa	1	2	3	4	5	_____

REPARACION Y MANTENIMIENTO

Las siguientes preguntas se refieren a **las reparaciones y el mantenimiento** de su casa. Explique brevemente su experiencia con **las reparaciones y el mantenimiento** de su casa:

57. ¿Hasta que punto el programa de ayuda-mutua le enseñó las capacidades necesarias para que usted pueda hacer reparaciones en su casa (llave de agua goteando, rotura en un tubo de agua, etc.)?

_____
_____
_____
_____

58. ¿Hasta que punto el programa de ayuda-mutua le enseñó las capacidades necesarias para que usted pueda hacer el mantenimiento de su casa (pintura, caulking, etc.)?

_____
_____
_____
_____

59. ¿Alguien en su hogar hace las reparaciones y/o el mantenimiento de su casa? Marque la repuesta correcta.

1. _____ Nunca
2. _____ A veces
3. _____ Siempre

DATOS DE LA CASA:

Por favor marque el número de su respuesta. **Escoja una sola respuesta.**

60. Marque en cuál año terminó la construcción de su casa:

1. _____ 1990
2. _____ 1991
3. _____ 1992
4. _____ 1993
5. _____ 1994
6. _____ 1995
7. _____ 1996

61. Marque el nombre de la subdivisión donde usted vive:

1. _____ Spring Hill
2. _____ Brophy
3. _____ Western Elm
4. _____ Chadwick Estates
5. _____ Cody Subdivision
6. _____ Wiggins Subdivision
7. _____ Hoff Subdivision, Units 1 & 2
8. _____ Greenwood Estates
9. _____ John F. Kennedy
10. _____ Hoff Subdivision, Units 3 & 4
11. _____ No Me Acuerdo

62. Marque cuántos dormitorios tenía su casa cuando usted la compró: __2 __ 3 __ 4 __ 5__ other

63. Marque cuántos baños tenía su casa cuando usted la compró: __1.5 __2 __ 2.5 _other

64. ¿Cuál es su opinión **total** de la calidad del interior de su casa?

Muy Descontento				Muy Satisfecho
1	2	3	4	5

Información Demográfica

Esta es la última sección del cuestionario. El próximo grupo de preguntas se refieren a usted personalmente. Toda la información en este cuestionario es *confidencial.* Por favor escoja la repuesta más apropriada.

65. Marque si usted es del sexo masculino o femenino:

1. _____ Masculino
2. _____ Femenino

66. ¿Cuál es su edad? _____

67. Marque cuántos años de escuela usted ha **TERMINADO:**

1. _____ primario (grados 1-6)
2. _____ secundario (grados 7,8, y 9)
3. _____ el colegio (grados 10-12)
4. _____ certificado de una escuela vocacional (profesional)
5. _____ la universidad de la comunidad
6. _____ la universidad
7. _____ estudio superiores en la universidad

68. Marque cuál de los siguientes describe mejor el ingreso anual de los que viven en la casa:

1. _____ menos de $10,000
2. _____ $10,000-$14,999
3. _____ $15,000-$19,999
4. _____ $20,000-$29,999
5. _____ $30,000-$39,999
6. _____ $40,000-$49,999
7. _____ Más de $50,000 por año

69. ¿Quién vive en la casa con usted? **Por favor marque todos los que son aplicables:**

1. _____ hijos
2. _____ padres
3. _____ esposa/esposo
4. _____ personas que no son sus parientes
5. _____ hermanos
6. _____ hermanas
7. _____ otros parientes (abuelos, primos, sobrinos/as, tios, tias, etc.)

70. ¿Cuántas personas viven en su casa incluyendo usted? _____ (# de personas)

71. Marque su nacionalidad/etnicidad:

1. _____ Hispano
2. _____ Asiático
3. _____ Caucásico
4. _____ Afro-Americano
5. _____ Isleño del Pacífico
6. _____ Otro

72. Usted puede usar este espacio para hacer cualquier comentario adicional acerca del interior de su casa.

_____

_____

_____

_____

¡GRACIAS POR SU AYUDA!

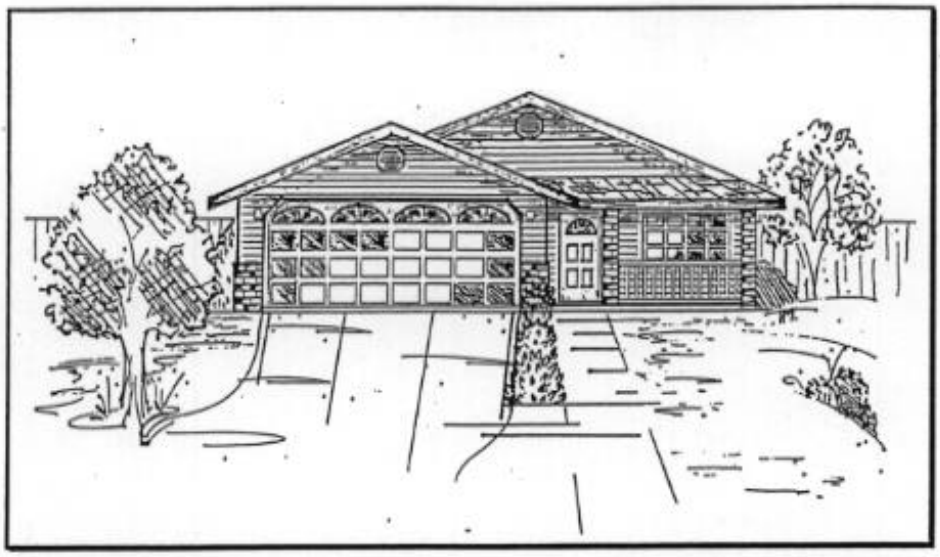
Por favor ponga el cuestionario completamente contestado
en el sobre con la dirección ya escrita y la estampilla prepagada.

Si usted pierde el sobre, diríjalo a:
Community Housing Improvement Program, Inc.
Attention: Kris Zappettini
1001 Willow Street
Chico, CA 95928

APPENDIX C

Pilot Test Survey Instrument: English Version

Pilot Test Survey Instrument: Spanish Version



Rural Self-Help Housing: A Case Study of Homeowners' Satisfaction with Residential Space Plan Design & Housing Quality

This questionnaire is part of a research study being conducted by Kris Zappettini (PhD Candidate) through Virginia Polytechnic Institute and State University (Virginia Tech) with the support of Community Housing Improvement Program, Inc. (CHIP).

February, 1999

You have been selected to participate in a study which focuses on the satisfaction of CHIP homeowners in the rural areas of Butte, Glenn, and Shasta Counties. The purpose of this study is to understand what factors influence your housing satisfaction with respect to residential space plan design and housing quality.

Your response to this questionnaire is greatly appreciated and will be beneficial to CHIP when planning future Rural Self-Help subdivisions. *This survey is confidential and your name will not be associated with it.*

This survey should be filled out by one of the owners. Please take a few minutes to fill out the questionnaire. When you finish, put the questionnaire in the attached, addressed and pre-paid envelope and mail it. *Thank you!*

Residential Space Plan Design:

The following questions are statements about the **STORAGE** areas in your house. The "#1" indicates "Very Dissatisfied" and the "#5" indicates "Very Satisfied". Please circle the number that best reflects your satisfaction with **storage** in these areas:

	Very Dissatisfied				Very Satisfied	Not Applicable
1. Storage in the master bedroom bathroom	1	2	3	4	5	9
2. Storage in the central hall bathroom	1	2	3	4	5	
3. Storage in the hall closet	1	2	3	4	5	9
4. Closet space in the master bedroom	1	2	3	4	5	
5. Closet space in the other bedrooms	1	2	3	4	5	
6. Storage space in the kitchen	1	2	3	4	5	
7. Storage space for cleaning equipment & supplies	1	2	3	4	5	
8. Storage space for household linens	1	2	3	4	5	
9. Storage space in the front entry closet	1	2	3	4	5	
10. **Overall** opinion of storage space in your house	1	2	3	4	5	

The following questions are statements about the **SIZE** of areas in your house. The "#1" indicates "Very Dissatisfied" and the "#5" indicates "Very Satisfied". Please circle the number that best reflects your satisfaction with **size** of areas in your house:

	Very Dissatisfied				Very Satisfied	Not Applicable
11. Size of the master bedroom	1	2	3	4	5	
12. Size of the master bedroom bathroom	1	2	3	4	5	9
13. Size of the other bedrooms	1	2	3	4	5	
14. Size of the kitchen	1	2	3	4	5	
15. Size of the eating area in the kitchen	1	2	3	4	5	9
16. Size of the living room / dining room	1	2	3	4	5	
17. Size of the central hall bathroom	1	2	3	4	5	

	Very Dissatisfied				Very Satisfied	Not Applicable
18. Size of hallways	1	2	3	4	5	
19. **Overall** opinion of the size of rooms in your house	1	2	3	4	5	

The following questions are statements about the **LOCATION** of rooms and features in your house. The "#1" indicates "Very Dissatisfied" and the "#5" indicates "Very Satisfied". Please circle the number that best reflects your satisfaction with **location** of rooms/features in your house:

	Very Dissatisfied				Very Satisfied	Not Applicable
20. Location of the master bedroom	1	2	3	4	5	9
21. Location of the master bathroom	1	2	3	4	5	9
22. Location of the other bedrooms	1	2	3	4	5	
23. Location of central hall bathroom	1	2	3	4	5	
24. Location of kitchen	1	2	3	4	5	
25. Location of living room / dining room	1	2	3	4	5	
26. Location of windows in the house	1	2	3	4	5	
27. Location of garage	1	2	3	4	5	9
28. Location of entrances into house	1	2	3	4	5	
29. **Overall** opinion of the location of rooms/features in your house	1	2	3	4	5	

ALTERATIONS/MODIFICATIONS

The following questions are statements about the **alterations** and/or **modifications** to your house. Please circle the number that best reflects the **alterations** and/or **modifications** (if applicable) that your have done to your house:

30. Have you made any interior alterations and/or modifications to the interior of your house? **IF NO, ANSWER QUESTION #31 AND THEN MOVE TO QUESTION #35.**

1. YES
2. NO

31. If you have **NOT** made interior alterations and/or modifications, please describe why not:

_____

_____

_____

32. If you have made interior alterations and/or modifications, please describe what you changed:

_____

_____

_____

33. Did you do the interior alterations and/or modifications yourself or did you hire someone to do the work for you?

1. Did the work myself
2. Hired someone to do the work

34. If you did the alterations and/or modifications yourself, did you use the training you received while building your self-help house?

1. YES
2. NO
3. NOT APPLICABLE

HOUSING QUALITY

The following questions are statements about the **quality** of your house. The "#1" indicates "Very Dissatisfied" and the "#5" indicates "Very Satisfied". Please circle the number that best reflects your satisfaction with the **quality** of your house:

	Very Dissatisfied				Very Satisfied	If Dissatisfied Briefly Explain
35. Quality of windows	1	2	3	4	5	
36. Quality of exterior and interior doors	1	2	3	4	5	
37. Quality of interior walls	1	2	3	4	5	
38. Quality of interior paint	1	2	3	4	5	
39. Quality of kitchen cabinets	1	2	3	4	5	
40. Quality of bathroom cabinets	1	2	3	4	5	
41. Quality of carpeting	1	2	3	4	5	
42. Quality of flooring in bathrooms	1	2	3	4	5	
43. Quality of flooring in kitchen	1	2	3	4	5	
44. Quality of kitchen countertops	1	2	3	4	5	
45. Quality of range (oven/burners)	1	2	3	4	5	
46. Quality of water heater	1	2	3	4	5	
47. Quality of heating unit	1	2	3	4	5	
48. Quality of air conditioner	1	2	3	4	5	
49. Quality of air distribution (vents)	1	2	3	4	5	
50. Quality of interior construction	1	2	3	4	5	
51. Quality of interior building materials	1	2	3	4	5	
52. Quality of plumbing	1	2	3	4	5	
53. Quality of electrical	1	2	3	4	5	
54. Quality of built-in lighting fixtures	1	2	3	4	5	
55. Quality of bathroom fans	1	2	3	4	5	
56. **Overall** satisfaction with the interior quality of your house	1	2	3	4	5	

REPAIR AND MAINTENANCE

The following questions are about the **repair and maintenance** of your house. Please circle the number that best reflects your experiences with the **repair and maintenance** of your house:

57. To what extent did the Self-Help Program teach you the necessary skills so that you can do repairs on your house? (i.e., leaky faucet, crack in water pipe)

58. To what extent did the Self-Help Program teach you the necessary skills so that you can do maintenance on your house? (i.e., caulking, painting)

59. Does someone in your household do the repairs and/or maintenance of your house? Circle the appropriate answer.

1. Never
2. Sometimes
3. Always

HOUSING INFORMATION:

Please circle the number that best reflects your answer. **Choose only one answer.**

60. You completed building your house in which year?

1. 1990
2. 1991
3. 1992
4. 1993
5. 1994
6. 1995
7. 1996

61. The name of the subdivision where you live is:

1. Spring Hill
2. Brophy
3. Western Elm
4. Chadwick Estates
5. Cody Subdivision
6. Wiggins Subdivision
7. Hoff Subdivision, Units 1 & 2
8. Greenwood Estates
9. John F.Kennedy
10. Hoff Subdivision, Units 3 & 4
11. Don't Remember

62. How many bedrooms does your house have?
(Number of bedrooms at the time you purchased your house)

63. How many bathrooms does your house have?
(Number of bathrooms at the time you purchased your house)

64. How satisfied are you OVERALL with the interior of your house?

Very Dissatisfied				Very Satisfied
1	2	3	4	5

Demographic Information:

This is the last section of the questionnaire. The next set of questions will pertain to you personally. All the information in this questionnaire is *confidential*. Please circle the most appropriate answer.

65. Are you female or male?

1. Female
2. Male

66. What is your age?_____

67. How many years of schooling have you **COMPLETED**?

1. grade school (grades 1-6)
2. middle school (grades 7, 8 & 9)
3. high school (grades 10-12)
4. vocational school certificate
5. Community College-Associate Degree
5. College degree
6. Completed a degree higher than college

68. Which of the following best describes your annual **household** income (gross income)?

1. less than $10,000
2. $10,000-$14,999
3. $15,000-$19,999
4. $20,000-$29,999
5. $30,000-$39,999
6. $40,000-$49,999
7. Over $50,000 per year

69. Who lives in this house with you? **Please circle all that apply**.

1. children
2. parents
3. spouse
4. non relatives
5. brothers
6. sisters
7. relatives (grandparents, cousins, nieces, nephews, aunts, uncles, etc.)

70. How many people live in your house?_____(# of people)

71. What is your nationality/ethnic background?

1. Hispanic
2. Asian
3. Caucasian
4. Afro-American
5. Pacific Islander
7. Other_____

72. You many use the following space to add any additional comments about the interior of your house.

_____

_____

_____

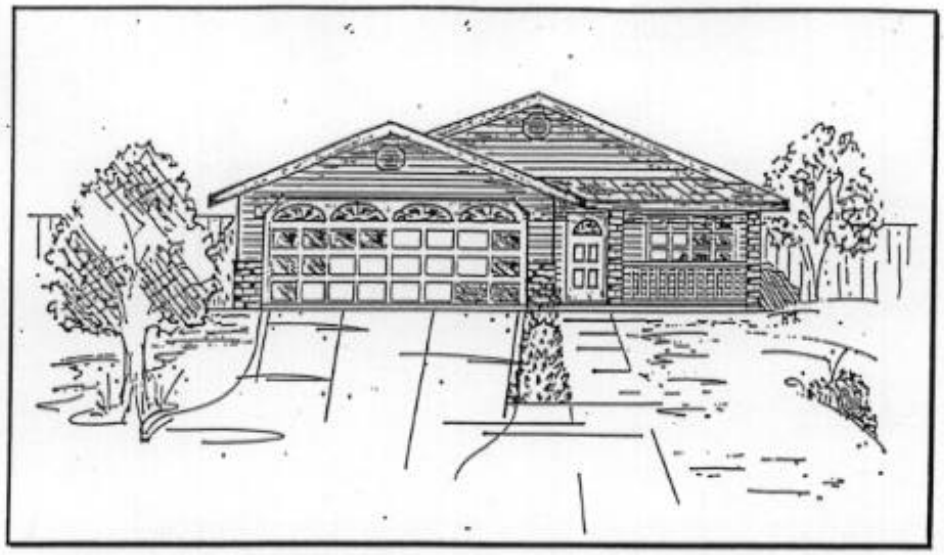
_____

THANK YOU FOR YOUR HELP!

Please place your completed questionnaire in the postage paid self-addressed envelope.

If you lose the envelop, mail to:

Community Housing Improvement Program, Inc.
Attention: Kris Zappettini
1001 Willow Street
Chico, CA 95928



Programa de Vivienda Rural de Ayuda Mutua: Un Estudio Sobre la Satisfacción de los Dueños de Casa con el Diseño del Plan del Espacio Residencial y la Calidad de Vivienda

Este cuestionario es parte de un estudio de investigación conducido por Kris Zappettini (candidata para un PhD) a través de Virginia Polytechnic Institute y State University (Virginia Tech) con el apoyo de Community Housing Improvement Program, Inc. (CHIP).

Febrero, 1999

Usted ha sido seleccionado para participar en un estudio que enfoca el nivel de satisfacción de los dueños de casa en CHIP en las areas rurales de los condados de Butte, Glenn, y Shasta. El propósito de este estudio es entender que factores influyen en la satisfacción de su vivienda con respecto al diseño del plan de espacio residencial y la calidad de la vivienda.

Sus respuestas a este cuestionario son grandemente apreciadas y serán beneficiosas para CHIP en la planifacación de futuras viviendas rurales de ayuda mutua. *Esta encuesta es confidencial y su nombre no será asociado con la misma.*

Por favor, tome unos momentos para completar el cuestionario. Cuando termine póngalo en el sobre con la dirección ya escrita y la estampa prepagada adjunto y envíelo. *¡Muchas gracias!*

Diseño del Plan del Espacio Residencial:

Las siguientes preguntas se refieren a las areas de **ALMACEN** de su casa. El "#1" indica "Muy Descontento" y el "#5"indica "Muy Satisfecho". Por favor encierre en un círculo el número que mejor refleja su satisfacción con las areas de **almacen.**

		Muy Descontento				Muy Satisfecho	No Es Aplicable
1.	Almacen en el baño del cuarto principal	1	2	3	4	5	9
2.	Almacen en el baño del pasillo	1	2	3	4	5	
3.	Almacen en el closet del pasillo	1	2	3	4	5	9
4.	Espacio del closet en el cuarto principal	1	2	3	4	5	
5.	Espacio del closet en los otros cuartos	1	2	3	4	5	
6.	Espacio para almacen en la cocina	1	2	3	4	5	
7.	Espacio para almacen de equipo de limpieza y vivieres	1	2	3	4	5	
8.	Espacio de almacen para toallas y sábanas	1	2	3	4	5	
9.	Espacio para almacen en el closet de la entrada principal	1	2	3	4	5	9
10.	En resumen su opinión del espacio para almacen en su casa	1	2	3	4	5	

Las siguientes preguntas se refieren al **TAMANO** de las areas de su casa. El "#1" indica "Muy Descontento" y el "#5" indica "Muy Satisfecho." Por favor encierre en un círculo el número que mejor refleja su satisfacción con el tamaño de las areas de su casa:

		Muy Descontento				Muy Satisfecho	No Es Aplicable
11.	Tamaño del cuarto principal	1	2	3	4	5	
12.	Tamaño del baño del cuarto principal	1	2	3	4	5	9
13.	Tamaño de los otros cuartos	1	2	3	4	5	
14.	Tamaño de la cocina	1	2	3	4	5	

15.	Tamaño del comedor de la cocina	1	2	3	4	5	9
16.	Tamaño de la sala / comedor	1	2	3	4	5	
17.	Tamaño del baño en el pasillo central	1	2	3	4	5	
18.	Tamaño de los pasillos	1	2	3	4	5	
19.	En resumen su opinión del tamaño de los cuartos de su casa	1	2	3	4	5	

Las siguientes preguntas se refieren a la **LOCALIZACION** de los cuartos/características en su casa. El "#1" indica "Muy Descontento" y el "#5" indica "Muy Satisfecho." Por favor encierre en un círculo el número que mejor refleja su satisfacción con la **localización** de los cuartos/características en su casa:

		Muy Descontento			Muy Satisfecho		No Es Aplicable
20.	Localización del cuarto principal	1	2	3	4	5	9
21.	Localización del baño del cuarto principal	1	2	3	4	5	
22.	Localización de los otros cuartos	1	2	3	4	5	
23.	Localización del baño del pasillo central	1	2	3	4	5	
24.	Localización de la cocina	1	2	3	4	5	
25.	Localización de la sala/comedor	1	2	3	4	5	
26.	Localización de las ventanas en la casa	1	2	3	4	5	
27.	Localización del garaje	1	2	3	4	5	9
28.	Localización de las entradas de la casa	1	2	3	4	5	
29.	En resumen su opinión de la localizacion de los cuartos/características en su casa	1	2	3	4	5	

ALTERACIONES/MODIFICACIONES

Las siguientes preguntas se refieren a las **alteraciones/modificaciones** en su casa. Por favor encierre en un círculo el número que mejor refleja las **alteraciones/modificaciones** que usted ha hecho en su casa:

30. ¿Ha hecho alguna alteración/modificación al interior de su casa? **SI NO, CONTESTE LA PREGUNTA #31 Y DESPUES CONTESTE LA PREGUNTA #35.**

1. SI
2. NO

31. Si **NO** ha hecho alteraciones/modificaciones, por favor describa por que no:

_____
_____
_____

32. Si ha hecho alteraciones/modificaciones, por favor describa que cambió:

_____
_____
_____

33. ¿Las alteraciones/modificaciones en el interior las hizo usted mismo o empleó a alguien para hacerlo?

1. Yo mismo hice el trabjo
2. Empleé a alguien para que haga el trabajo

34. Si usted mismo hizo las alteraciones/modificaciones, ¿usó el entrenamiento recibido mientras construía su casa con ayuda-mutua?

1. SI
2. NO
3. NO APLICABLE

CALIDAD DE LA CASA

Las sigientes preguntas se refieren a **la calidad** de su casa. El "#l" indica "Muy Descontento" y el "#5" indica "Muy Satisfecho." Por favor encierre en un círculo el nùmero que mejor refleja su satisfacción con la calidad de su casa:

		Muy Descontento			Muy Satisfecho		Si Muy Descontento Explique Brevemente Porque
35.	Calidad de las ventanas	1	2	3	4	5	
36.	Calidad de las puertas exteriores e interiors	1	2	3	4	5	
37.	Calidad de las paredes interiores	1	2	3	4	5	
38.	Calidad de la pintura interior	1	2	3	4	5	
39.	Calidad de los anaqueles de la cocina	1	2	3	4	5	
40.	Calidad de los anaqueles del baño	1	2	3	4	5	
41.	Calidad de las alfombras	1	2	3	4	5	
42.	Calidad del piso en los baños	1	2	3	4	5	
43.	Calidad del piso en la cocina	1	2	3	4	5	
44.	Calidad de las tableras en la cocina	1	2	3	4	5	
45.	Calidad del horno	1	2	3	4	5	
46.	Calidad del calentador de agua	1	2	3	4	5	
47.	Calidad de la califacción	1	2	3	4	5	
48.	Calidad del aire acondicionado	1	2	3	4	5	
49.	Calidad de la distribución del aire	1	2	3	4	5	
50.	Calidad de la construcción interior	1	2	3	4	5	
51.	Calidad de las materiales de construcción en el interior	1	2	3	4	5	
52.	Calidad de la plomería	1	2	3	4	5	
53.	Calidad de las instalaciones eléctricas	1	2	3	4	5	
54.	Calidad de las luces	1	2	3	4	5	

55.	Calidad de los ventiladores del baño	1	2	3	4	5
56.	En resumen su satisfacción con la calidad del interior de su casa	1	2	3	4	5

REPARACION Y MANTENIMIENTO

Las siguientes preguntas se refieren a **las reparaciones y el mantenimiento** de su casa. Explique brevemente su experiencia con **las reparaciones y el mantenimiento** de su casa:

57. ¿Hasta que punto el programa de ayuda-mutua le enseñó las capacidades necesarias para que usted pueda hacer reparaciones en su casa (llave de agua goteando, rotura en un tubo de agua, etc.)?

_____

_____

_____

_____

58. ¿Hasta que punto el programa de ayuda-mutua le enseñó las capacidades necesarias para que usted pueda hacer el mantenimiento de su casa (pintura, caulking, etc.)?

_____
_____
_____

59. ¿Alguien en su hogar hace las reparaciones y/o el mantenimiento de su casa?

1. Nunca
2. A veces
3. Siempre

DATOS DE LA CASA:

60. ¿En cuál año terminó la construcción de su casa?

1. 1990
2. 1991
3. 1992
4. 1993
5. 1994
6. 1995
7. 1996

61. ¿E l nombre de la subdivisión en la que usted construyó su casa es?

1. Spring Hill
2. Brophy
3. Western Elm
4. Chadwick Estates
5. Cody Subdivision
6. Wiggins Subdivision
7. Hoff Subdivision, Units 1 & 2
8. Greenwood Estates
9. John F. Kennedy
10. Hoff Subdivision, Units 3 & 4
11. No Me Acuerdo

62. ¿Cuántos dormitorios tiene su casa?_____
(Número de dormitorios en el tiempo en que compró la casa)

63. ¿Cuántos baños tenía su casa _____
(Número de baños en el tiempo en que compró la casa)

64. ¿Cuál es su opinión **total** de la calidad del interior de su casa?

Muy Descontento				Muy Satisfecho
1	2	3	4	5

Información Demográfica

Esta es la última sección del cuestionario. El próximo grupo de preguntas se refieren a usted personalmente. Toda la información en este cuestionario es *confidencial.* Por favor escoja la repuesta más apropriada.

65. ¿Es usted es del sexo masculino o femenino?

1. Masculino
2. Femenino

66. ¿Cuál es su edad¿ _____

67. ¿Cuántos años de escuela ha **TERMINADO** usted?**:**

1. primario (grados 1-6)
2. secundario (grados 7,8, y 9)
3. el colegio (grados 10-12)
4. certificado de una escuela vocacional (profesional)
5. a universidad de la comunidad
6. la universidad
7. estudio superiores en la universidad

68. ¿Cuál de los siguientes describe mejor el ingreso anual de los que viven en la casa?:

1. menos de $10,000
2. $10,000-$14,999
3. $15,000-$19,999
4. $20,000-$29,999
5. $30,000-$39,999
6. $40,000-$49,999
7. Más de $50,000 por año

69. ¿Quién vive en la casa con usted? **Por favor encierren en un círculo todos los que son aplicables.**

1. hijos
2. padres
3. esposa/esposo
4. personas que no son sus parientes
5. hermanos
6. hermanas
7. otros parientes (abuelos, primos, sobrinos/as, tios, tias, etc.)

70. ¿Cuántas personas viven en su casa? _____ (# de personas)

71. ¿Cuál es su nacionalidad/etnicidad?

1. Hispano
2. Asiático
3. Caucásico
4. Afro-Americano
5. Isleño del Pacífico
6. Otro

72. Usted puede usar este espacio para hacer cualquier comentario adicional acerca del interior de su casa.

_____

_____

_____

_____

¡GRACIAS POR SU AYUDA!

Por favor ponga el cuestionario completamente contestado
en el sobre con la dirección ya escrita y la estampilla prepagada.

Si usted pierde el sobre, diríjalo a:
Community Housing Improvement Program, Inc.
Attention: Kris Zappettini
1001 Willow Street
Chico, CA 95928

APPENDIX D

Introduction Letters: English Version

Introduction Letters: Spanish Version

Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Department of Near Environments
College of Human Resources and Education (0410)
Blacksburg, Virginia 24061
(540) 231-6179 Fax: (540) 231-3250

January 7, 2000

Dear CHIP Homeowner:

You have been selected in be a participant in a study that will focus on Community Housing Improvement Program's (CHIP) Rural Self-Help Program. More specifically, this study has been developed to determine which factors influence your satisfaction with interior features of your house that you built through this program.

I am a graduate student at Virginia Tech in the Housing Program as well as an employee of CHIP. It is with great personal and professional interest that I am conducting this survey to understand what influences Rural Self-Help Homeowners with respect to their housing satisfaction.

This survey is being conducted with CHIP's full support. The results from this study will assist CHIP with future developments and help them better understand their clients' opinions about their housing satisfaction. Information you share in this survey will be confidential and you will not be identified by name.

I hope that you will complete and return the survey; it should only take you about fifteen minutes to fill out.

Thank you in advance for your consideration and participation.

Sincerely,

Kris Zappettini
Investigator

Julia O. Beamish, Ph.D.
Associate Professor of Housing

A Land-Grant University—The Commonwealth Is Our Campus
An Equal Opportunity / Affirmative Action Institution

Community
Housing
Improvement
Program
CHIP

January 10, 2000

Dear CHIP Homeowner:

We are aware that you have been selected to participate in a study that focuses on the satisfaction of CHIP Rural Self-Help Homeowners. As Executive Director and Self-Help Program Manager, we fully endorse the survey that you will receive.

As participants in CHIP's Rural Self-Help Program, your opinions about what influences your satisfaction with your home's interior features is important to us. We believe that results from this survey will help us better understand our clients' needs and help us to develop even better subdivisions in the future.

Kris Zappettini, who is the investigator for this survey, is a CHIP employee and is conducting this survey as her topic for her dissertation. We fully support her efforts in this endeavor.

It is our hope that one of the owners will take a few minutes to complete the survey. If you have any questions about this survey, please feel free to contact us at (530) 891-6931.

Thank you for your consideration and participation.

Sincerely,

Dave Ferrier
Executive Director

Imelda Michel
Self-Help Program Coordinator

A Private Non-Profit Corporation
1001 Willow Street
Chico, CA 95928
(530) 891-6931
FAX: (530) 891-8547

Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Department of Near Environments
College of Human Resources and Education (0410)
Blacksburg, Virginia 24061
(540) 231-6179 Fax: (540) 231-3250

7 de enero, 2000

Estimado Dueño de Casa de Programa CHIP:

Usted ha sido seleccionado para participar en un estudio que se basa en el Programa de Ayuda Mutua de Community Housing Improvement Program (CHIP). Más especificamente este estudio ha sido desarrollado para determinar que factores influencian su satisfacción con las características interiores de la casa que usted construyó a través de este programa.

Soy una estudiante de estudios superiores en Virginia Tech en el Programa de Vivienda, así como también una empleada de CHIP. Es con gran interés personal y profesional que estoy conduciendo este cuestionario para entender que influencia a los dueños de casa de ayuda mutua en la satisfacción con su vivienda.

Este cuestionario está siendo conducido con el completo apoyo de CHIP. Los resultados de este estudio asistirán a CHIP en futuros desarrollos y los ayudarán a entender mejor las opiniones de sus clientes en relación a la satisfacción con su vivienda. La información que usted comparta en este cuestionario será confidencial y usted no será identificado/a por su nombre.

Espero que usted complete y envíe de regreso el cuestionario; llenarlo le tomará solamente quince minutos más o menos.

Le anticipo mis agradecimientos por su consideración y participación.

Sinceramente,

Kris Zappettini
Investigadora

Julia O. Beamish, Ph.D.
Profesora Asociada de Viviendas

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Community
Housing
Improvement
Program
CHIP

10 de enero, 2000

Estimado Dueño de Casa del Programa CHIP:

Estamos concientes que usted ha sido seleccionado para participar en un estudio que se enfoca en la satisfacción de los dueños de casa con el Programa de Ayuda Mutua de CHIP. Como Director Ejecutivo y Administradora del Programa de Ayuda Mutua, completamente apoyamos el cuestionario que usted recibirá.

Como participantes en el programa de ayuda mutua rural desarrollado por CHIP, sus opiniones acerca de que influencia su satsifacción con las características interiores de su casa es importante para nosotros. Creemos que los resultados de este cuestionario nos ayudarán a entender mejor las necesidades de nuestros clientes y a desarrollar aún mejores subdivisiones en el futuro.

Kris Zappettini, quien es la investigadora de esta encuesta, es una empleada de CHIP y está conduciendo este cuestionario como el tema para su disertación. Nosotros apoyamos completamente sus esfuerzos en este empeño.

Es nuestra esperanza que usted tomará unos minutos para completar este cuestionario. Si tiene preguntas acerca de este cuestionario, por favor siéntase libre de contactarnos en el (530) 891-6931.

Gracias por su consideración y participación.

Sinceramente,

David Ferrier
Director Ejecutivo

Imelda Michel
Administrador del Programa
de Ayuda Mutua Rural

A Private Non-Profit Corporation
1001 Willow Street
Chico, CA 95928
(530) 891-6931
FAX: (530) 891-8547

APPENDIX E

Table 15: Housing Quality Comments

Table 15

Housing Quality Comment Summary

Description	N	%
Quality of Windows		
Moisture	8	47
Don't work	5	29
Leak	2	12
Cheap	1	6
Insulation	1	6
Total	17	100
Quality of Exterior and Interior Doors		
Cheap	13	81
Don't fit	2	13
Leaks	1	6
Total	16	100
Quality of Interior Walls		
Poor workmanship	13	100
Total	13	100
Quality of Interior Paint		
Cheap	17	77
Can't wash	4	18
Ugly color	1	5
Total	16	100

(table continues)

Table 15 (continued)

Housing Quality

Description	N	%
Quality of Kitchen Cabinets		
Cheap	3	50
Too small	1	17
No knobs	1	17
Bad finish	1	17
Total	6	101
		(rounding error)
Quality of Bathroom Cabinets		
Cheap	2	40
No knobs	1	20
Need wider shelves	1	20
Rusts easily	1	20
Total	5	100
Quality of Carpeting		
Cheap	23	82
Falling apart	3	11
Thin pad	1	4
Stains easily	1	4
Total	28	101
		(rounding error)

(table continues)

Table 15 (continued)

Housing Quality

Description	N	%
Quality of Flooring in Bathroom		
Cheap	26	81
Leaks (mold)	2	6
Need new product	1	6
Discolors	1	3
No caulking	1	3
Total	31	99
		(rounding error)
Quality of Flooring In Kitchen		
Cheap	29	85
Damages easily	4	12
Need new product	1	3
Total	34	100
Quality of Kitchen Countertops		
Cheap	4	67
Chipped	1	17
Average	1	17
Total	6	101
		(rounding error)
Quality of Range (oven/burner)		
Cheap	6	86
Average	1	14
Total	7	100

(table continues)

Table 15 (continued)
Housing Quality

Description	N	%
Quality of Water Heater		
Cheap	1	50
Noisy	1	50
Total	2	100
Quality of Heating Unit		
Didn't work	1	33
Noisy	1	33
Cheap	1	33
Total	3	99
		(rounding error)
Quality of Air Conditioner		
Leaks	1	100
Total	1	100
Quality of Air Distribution Vents		
Cheap	3	43
Doesn't work	2	29
Poor air flow	2	29
Total	7	101
		(rounding error)

(table continues)

Table 15 (continued)

Housing Quality

Description	N	%
Quality of Interior Construction		
Cheap	5	56
Poor workmanship	4	44
Total	9	100
Quality of Interior Building Materials		
Cheap	6	100
Total	6	100
Quality of Plumbing		
Leaks/plugged	4	67
Replaced	1	17
Cheap	1	17
Total	6	101 (rounding error)
Quality of Electrical		
More outlets	1	100
Total	1	100
Quality of Built-in Lighting Fixtures		
Average	2	33
Doesn't work	2	33
Cheap	1	17
Replaced	1	17
Total	6	100

(table continues)

Table 15 (continued)

Housing Quality

Description	N	%
Quality of Bathroom Fans		
No fans	5	56
Doesn't work	3	33
Cheap	1	11
Total	9	100
Overall Satisfaction With The Interior Quality Of Your House		
Cheap	3	75
Very Dissatisfied	1	25
Total	4	100

APPENDIX F

Vita

VITA

Name: Kris Zappettini

Degrees Earned:

B. S., Home Economics: Housing and Interior Design
California State University, Chico

B.A., Interdisciplinary Studies: Art History & Interior Design
California State University, Chico

PhD, College of Near Environments: Housing