

DEVELOPMENT OF INDEPENDENT LEARNING PACKETS
ON WORK SIMPLIFICATION IN KITCHENS
FOR WHEELCHAIR HOMEMAKERS

By

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PREFACE

This study is concerned with educating wheelchair homemakers on kitchen planning by using self-help packets. It is hoped that this study will be helpful in rehabilitating disabled women so that they can resume normal household activities.

The author wishes to express her appreciation to Dr. Florence McKinney for her reassurance and guidance throughout the study. Also appreciation is expressed to Miss Sue Herndon, Mrs. Gertrude Means, and Mrs. Christine Salmon for offering helpful suggestions during the development of the study.

The researcher is especially grateful to the three wheelchair homemakers who gave of their time to participate in the study.

Then to her husband, she expresses deepest gratitude for his support and encouragement throughout this endeavor.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.	1
Statement of Problem	1
Background of the Study.	2
Objectives	4
Procedure.	5
Limitations.	6
Assumptions.	6
Terms.	7
II. REVIEW OF LITERATURE.	9
III. METHODOLOGY	19
Case Study No. 1 (Miss "X").	21
Case Study No. 2 (Mrs. "Y").	22
Case Study No. 3 (Mrs. "Z").	24
Reach.	26
Process Chart.	27
Learning Packets	27
IV. DEVELOPMENT OF LEARNING PACKETS	29
Planned Kitchens Make a Difference	31
The Role of Kitchen Storage.	48
Let Kitchen Equipment Work for You	62
V. SUMMARY, RECOMMENDATIONS, AND CONCLUSION.	77
BIBLIOGRAPHY	81
APPENDIX A - MISS X'S KITCHEN AND STORAGE.	84
APPENDIX B - MRS. Y'S KITCHEN.	88
APPENDIX C - MRS. Z'S KITCHEN AND STORAGE CABINETS	95

CHAPTER I

INTRODUCTION

Homemaking involves more of the population than any other vocational field. Today it is considered an important occupation. Until recently, homemaking has been the most neglected area of rehabilitation. Disabled homemakers do not have a choice in their vocation. They must go back to their homes and manage in the best possible way.

In 1966 there were approximately 40 million homemakers in the United States. Among those women whose usual activity is keeping house there are 4,600,000 or nearly 12 percent who are victims of disabilities. (22)

The handicaps which these women had hampered them in doing their normal household activities.

It has been found that the kitchen is the area of the home where homemakers spend the majority of their working time. Since there is a large number of handicapped homemakers, it seems that much of the research findings in previous years on modifying kitchens should be combined to create individual learning packets so the disabled can have help in improving methods of doing household tasks.

Statement of Problem

This study is to utilize research findings from literature to create a series of packets on work simplification in kitchens. These packets will be designed to be used independently by wheelchair homemakers to make modifications of features in their conventional kitchens.

The content of the packets will be studied, used and evaluated by three wheelchair homemakers in Stillwater,

Background of the Study

Within recent years, a great amount of information has been published on modifications of kitchens for wheelchair homemakers. However, for various reasons, many handicapped homemakers are not able to take advantage of this material. In order for this knowledge to be more accessible it seems that independent learning packets need to be developed to help rehabilitate wheelchair users.

Individual packets could be made available by home economists through community libraries, state extension offices, and welfare agencies. Communities need to become involved in helping rehabilitate the physically handicapped.

The community effort is the spearhead of all federal and state action for health. It is the local front that national, state and community planning fuses into a single program, into a joint drive to improve conditions, to prevent individual sickness and disability and to save individual lives. (1)

If the attitude of the community is for helping wheelchair homemakers then the disabled will have more drive to become involved in rehabilitation programs, thereby, helping themselves become more productive individuals.

The method proposed by this researcher for aiding those in wheelchairs is to make available self-help packets from which kitchen planning principles can be learned and applied to individual home kitchens.

By using self-help packets a homemaker can choose the activities in which she would like to participate, depending on her understanding

of the material presented. Each homemaker can also set her own learning rate.

The long recognized need for an effective means of individualizing instruction has produced the demand; the technology of education has responded with self-instructional programs in which people can perform at their own rate. (12)

Individualized study has been found to develop a sense of achievement in mastering the objectives they set out to reach. This accomplishment gives one the initiative and desire to continue learning.

By using an individualized method of study, the wheelchair user can apply learnings from the information given in the packet to her own situation. In making modifications in her kitchen, she can realize how the suggested activities would be of benefit in doing various tasks.

For housewives who have physical limitations, the home is where their lives are centered. Since a majority of homemaking time is spent in the kitchen (35), an important part of the rehabilitation of the disabled homemaker would be adapting this area of the home to fulfill her specific needs as much as possible. Therefore, a self-help packet with which the homemaker could identify her own problems and which would help solve circumstances in her individual kitchen situation would be encouraging.

Some disabled women cannot continue to do all of their household tasks unless their kitchens are modified to meet their limitations. Wheelchair homemakers can learn from packets adjustments to be made in conventional kitchens that will help them to satisfactorily meet their needs.

If some work simplification principles were included in the packet the homemaker could be helped to accomplish many of her normal kitchen activities in less time and by expending less energy.

In discussing work simplification in the home, the kitchen is the logical place to start because it is here that the homemaker spends more working time than in any other area of the home; and, by learning to apply the principles of work simplification to her kitchen tasks, she may learn that she can use these same improved methods of work to do other household tasks. (16)

Disabled homemakers usually have the same family goals as the "normal" housewife. They want a satisfactory life for their families. Many wheelchair persons have limited energy because of various diseases. So one's aim should be to help the handicapped manage their resources in the best possible way.

Women without physical handicaps have long been lectured on 'saving themselves'--thinking out motions before making them, organizing kitchen arrangement, getting the maximum of accomplishment from minimum of effort. (26)

So if it is important for women who are not limited in their movements to consider work simplification, it is certainly essential for the handicapped homemaker.

It seems that if individual learning packets on work simplification in kitchens would help wheelchair homemakers have a greater degree of independence in their homemaking tasks they would be beneficial. Some disabled women cannot return to full-time homemaking unless their kitchens are modified to meet their limitations.

The majority of physically handicapped housewives need to make only a few adjustments in their kitchens so they can accomplish their jobs. Although the severely disabled patients are numerically a minority, kitchen planning pays for itself in the kind of homemakers it puts back in business. (37)

Objectives

1. To review the literature pertaining to kitchen planning, to

work simplification, to the physically handicapped, and to independent learning.

2. To develop self-help packets which wheelchair homemakers can use independently in making kitchen modifications.

3. To determine whether the packets that have been developed are clear and useful to wheelchair homemakers.

Procedure

1. Reviewed literature pertaining to kitchen planning, work simplification, the physically handicapped, and independent learning.

2. Located women in Stillwater who use wheelchairs in their everyday living.

3. Interviewed women to determine problem areas in the kitchen.

4. Conducted a study with the women participants pertaining to the storage of items.

- a. determined the horizontal and vertical reaches and comfortable work heights
- b. drew floor plan of homemakers' kitchen
- c. went through the procedure of preparing a meal with the women so their work habits and storage of articles could be determined
- d. made a process chart illustrating movements in preparing the meal
- e. analyzed the process chart and made modifications in storage and procedure of preparing the meal
- f. had the homemakers prepare identical meals and do a process chart to determine if applying work simplification

eliminated a portion of the distance traveled

5. Selected three areas to develop work simplification packets:
 - a. kitchen planning
 - b. storage
 - c. kitchen equipment and tools
6. Decided on format of packets.
7. Developed packets.
8. Had three wheelchair homemakers use and analyze each of the self-help packets.

Limitations

1. In choosing the physically handicapped individuals, only those permanently confined to wheelchairs were considered.
2. The disabled persons were restricted to women who had "normal" kitchens.
3. The wheelchair homemakers must be ones engaged in preparing meals.
4. The subjects had to be willing to try all of the self-help packets developed for this study and give their evaluation of each packet.
5. Only three subjects living in Stillwater during the school year of 1970-1971 and who met the other criteria were located for this study.

Assumptions

1. The three wheelchair homemakers who participated in the study have requirements similar to other wheelchair homemakers.

2. The areas selected for the self-help packets are important ones and will be of value to wheelchair individuals.

Terms

1. Process Chart -- A process chart is a means of studying one's movements from place to place by making a listing of what is being done and steps taken to achieve the task. Work simplification techniques can then be applied to the routine task to increase the effectiveness of the method of using time and energy.

2. Work Simplification -- Work simplification is a phase of management which is usually concerned with the resources of time and energy. One applies work simplification principles in doing a job to make it easier. Though often described by longer statements the principles of work simplification can be fully expressed in these four words: eliminate, combine, rearrange, and simplify. (27)

3. Packet -- As used in this study a packet is an independent learning program which is composed of lessons on kitchen planning for the physically handicapped. In this research, the material to be studied is presented as three lessons in written and visual form.

4. Vertical Reach -- To determine the maximum vertical reach, the subjects made three different reach approaches -- right, left, and straight ahead -- to a panel on which paper had been mounted. Holding a pencil close to the point and perpendicular to the panel, they made a short arc at the uppermost and lowermost points that they could reach. In the straight approach, the reach was made with the "best hand." (24)

5. Horizontal Reach -- These reaches were measured by first placing an adjustable ironing board at a comfortable height and laying a large piece of cardboard covered with white paper on the surface. The subject held a pencil close to the point and perpendicular to the surface. Holding her body erect as possible and her elbow stiff, she drew a wide arc with each hand. The test for horizontal reaches showed the width of accessible work space from a fixed position. (24)

CHAPTER II

REVIEW OF LITERATURE

Today in the United States there are millions of women whose occupation is homemaking. A portion of these housewives are limited in their kitchen activities because they possess a physical disability which confines them to a wheelchair. Handicapped homemakers cannot be categorized as being one particular sort of individual. They consist of various types of people.

We are young; we are old. We are of low estate; we are of high estate. We are humble; we are proud. We are without place; we are in high places. We have nowhere to lay our heads; we dwell in marble halls. We are undistinguished; we are among the distinguished great. For disability knows no limits, brooks no degree, and it is ageless. We are the disabled.

Some of us were 'born that way.' Some of us were disabled by disease. Some of us were struck down by injury in no more time than it takes a tiny leaf to tremble in the wind. We are scattered throughout the land. (19)

Having a physical handicap is no indication that a woman needs to give up her career as a successful housewife and mother. There have been many individuals who had disabilities but found a way to overcome them and as a result became famous. For instance, Beethoven was deaf but was a great musical composer. John Milton was blind but he became an outstanding literary figure.

It was once said that, there is no tragedy in physical affliction so long as one's spirit is whole. Resentment, bitterness, defeatism and sour social attitudes are sins of the spirit that clutter one's life and make it a useless thing.

Crisis and handicaps do not make heroes or cowards of us; they merely reveal the stuff of which we're made. The handicapped do not want pity. They want opportunity, and competitive opportunity at that. (30)

There are some circumstances a wheelchair homemaker must accept because they cannot be changed. If one cannot see properly they wear glasses. If one is not able to walk they wear wheels. Wheelchairs contribute a great deal in helping the physically impaired housewife resume her career as a homemaker. However, in some instances more aid is needed by the disabled to help them perform their normal activities.

After an accident or an illness which disables a housewife, rehabilitation is sometimes a difficult process. Many handicapped people need help in adjusting to their new way of life. Some of those who do not have assistance deteriorate because they cannot perform tasks in the kitchen.

No matter how vitamin-enriched, mineral-fortified, organically grown, or polyunsaturated a food may be if you can't unwrap it, you can't eat it. If you can't hold a knife you can't cut meat. If you can't turn the knob on an electric mixer, it isn't much of a work saver. For the handicapped, the potential for malnutrition in the midst of plenty is obvious. This is the plight of five million Americans whose physical disabilities limit performance of the simplest kitchen chores. (25)

Therefore, more attention needs to be given to the rehabilitation of physically handicapped housewives.

Rehabilitation is making it possible for physically handicapped men, women, and children, wherever they may live, to remove or reduce their impairment and lack of opportunity with the help of medical, social, educational, and vocational services so that they can partake of life that offers as many privileges and responsibilities as humanly possible. (31)

Rehabilitation of wheelchair homemakers could be partially accomplished by using educational materials and methods which today are

of seemingly endless variety. One type of study is independent learning which can take on various forms. This type of study could be used by wheelchair homemakers in their own homes to help them gain new ideas. Self-help packets can be placed in the independent learning category.

Packets are helping educators meet the needs of many people.

Individual kits are enabling us for the first time to meet the tremendous range of difference in students' interests, abilities, experiences and learning styles. (11)

Handicapped homemakers who use self-help packets can participate in the learning activities which apply to their situations and will be of most benefit to them. In using individualized learning, they have the opportunity to approach a topic in the way they feel will be most valuable to them.

"Some housewives will accomplish a specific objective best by reading, some by viewing visual aids. Others may learn best through doing activities." (38) Therefore, independent learning can be more effective than merely reading a textbook because the homemaker can start at her own level and accomplish the objectives by using the method she prefers.

Some disabled women cannot continue to do all of their household tasks unless their kitchens are modified to meet their limitations. Wheelchair homemakers can learn adjustments to make in conventional kitchens from self-help packets which will help them to satisfactorily meet their needs. Disabled homemakers will benefit emotionally, socially and economically if they are able to perform normal kitchen activities.

"A woman's ability to manage her own home even though she is disabled, contributes to her emotional health." (17) For example, when it comes time to bake a birthday cake for one of the children, if the homemaker can accomplish the task alone and does not have to ask for assistance it seems as though she has made a special contribution in making the child's birthday a happy occasion.

Being able to manage her own home, is important to the handicapped housewife also from a social aspect. Women feel more a part of their family and the community when they are able to participate in activities. For instance, if the homemaker is a member of an organization and the group has their meetings in individuals' homes, the handicapped housewife would also enjoy having guests without having to ask someone else to do the task for her.

Self-help packets can provide disabled persons information to help them modify their kitchens, and allow housewives to continue to carry on their homemaking services for the family.

If we examine the causes of broken homes and the disintegration of healthy family life, disablement of the wife and mother will appear high on the list. We know that handicapping conditions are as prevalent, as serious, and as costly among women as among men but we know, too, that far too little attention has been given to the rehabilitation needs of women. The disability of a wife and mother can destroy a home, cast children adrift, exhaust the husbands' earnings, and produce public costs which are so large and so prolonged as to be almost immeasurable. (29)

When the housewife is unable to continue her normal activities in the kitchen, the family is hampered economically because they must purchase services in the community. In many instances in which the homemaker is physically handicapped the family cannot afford to hire domestic help. So if the homemaker is not knowledgeable of inexpensive

modifications which can be performed to make her kitchen more efficient she must use her energy to carry out her tasks with the layout and equipment her home now possesses, which in many cases may be unsuitable.

The kitchen is an important area of the home as attested to by the number of hours spent there by homemakers.

A kitchen may be the heart of the house but it is also the work center. Four hours a day is about the minimum time that can be spent in the kitchen, cooking and cleaning up after three meals. This adds up to 28 hours a week, 126 hours a month, and 1,512 hours a year.

Faced with these pyramiding hours, the place to tackle the care and upkeep of a kitchen is in its basic organization and equipment. Efficient arrangement of major and minor appliances and adequate storage results in many hours and much energy saved. Four hours spent reorganizing a kitchen could save 50 to 75 hours a year. (8)

- When structural barriers are removed from the kitchen to help a wheelchair homemaker, many times the room is also made more functional and efficient for other members of the family to use. Therefore, a kitchen designed for a wheelchair person is not restricted to their use only. Attractiveness should not be the main goal in kitchen planning because this does not guarantee efficiency.

When a patient is confined to a wheelchair the ordinary home kitchen, beautiful as it may be, presents many architectural barriers. Counters used by normal people are too high. Faucets are too far away. Storage shelves are beyond reach either too high or too low. The ordinary range is also very difficult to use. (25)

When planning a kitchen, one should take into consideration the room and the equipment which will be needed for the activities performed there. Also one needs to consider the cooking habits of those who will be working in the kitchen.

A successful kitchen is at least 50 per cent the result of thinking--thinking done before building in the case of a new house, before remodeling in the case of an old one. True, millions of women carry on in kitchens that were put together without much thought. (13)

Kitchens which are not carefully planned are seldom efficient rooms in which to work. A kitchen may be attractive and contain modern tools and appliances but it is not necessarily an adequate work unit.

Many housewives do not analyze the tasks in which they engage to determine how kitchen planning affects the time and energy expended. Many wheelchair homemakers do not realize that the sequence of centers in their kitchen will determine to some extent the amount of chair manipulations they will make. For example, the centers which one travels to and from the most frequently in meal preparation should be located near one another.

Because you go to the refrigerator more often when you are preparing foods (that is if you are like more than 90 per cent of the women whose work has been studied) your preparation center should be near the refrigerator or other food storage places. (6)

The type of kitchen assembly is also an important area of kitchen planning for wheelchair homemakers to consider. There are four basic kitchen designs. When planning a kitchen, one should consider each type to determine the most appropriate for their situation.

The U-shaped is the best for what might be called a one-woman kitchen. It is the most compact and is completely free of the hazard of through traffic. The corridor type, which is essentially a U without a bottom, ranks high in efficiency if it is not used for a passageway. The L-shaped comes next to the U-shape from the standpoint of efficiency, and the straight-in-line arrangement ranks a poor third, except for very small kitchens. (13)

Wheelchair homemakers have basically the same goals and desires as healthy housewives. The kitchen is an important part of their home. They have a desire to continue with their normal kitchen activities.

A woman's kitchen isn't a laboratory for methodical dispensing of life-giving food in measured amounts three times a day. The kitchen is the heart of the house--where a woman can send out great, warm, good smelling waves of

love to her family, her neighbors, her friends, her world. A woman's kitchen is an artist's atelier, a musician's studio, a writer's workshop--except the door is never locked. The kitchen is where it all begins. (2)

It is important for the handicapped homemaker to be able to do tasks in her kitchen in an efficient way. Planning her work will allow for more efficiency.

If the physically handicapped homemaker will become conscious of work simplification principles and use them in her everyday living she will find that many of her kitchen tasks are easier to accomplish and with less time consumed. The application of work simplification techniques to routine tasks is an effective way of increasing the amount of time and energy available for those things one never seems to have time to do.

The well or normal homemaker usually wants to get through the routine work in her home to have more time and energy for other activities; but the disabled homemaker often finds that the only way she can do the routine home tasks required of her is by changing her working ways and simplifying and even eliminating many jobs. (16)

There are many health situations that limit one's energy. The problem which needs to be solved is to help these homemakers find easier ways of doing their work so they can conserve energy. Money can buy many services and energy saving equipment but long and serious illness can rapidly deplete this resource.

For this reason, when working with the disabled homemaker, one must offer as many suggestions as possible with little expense involved. For instance, there are many times fatigue could be reduced if the most frequently used items were stored in a convenient place.

While there is usually no one best method of doing a specific job, when one understands the basic principles of work simplification, each

person can apply them to her own situation and determine how the job can be simplified. If wheelchair homemakers would study each task they do in their kitchens they would recognize unnecessary motions and steps in which they engage.

It has been estimated that 25 to 50 percent of the manual work done in our homes is unnecessary--that the work might be done in a much better way, producing the same output with less expenditure of energy on the part of homemakers. (3)

Work simplification can be applied to various parts of a task. For instance, in meal preparation there are the phases of preparation, performance and clean-up. Preparation includes assembling the supplies and equipment needed to accomplish the task. A wheelchair housewife will save time and will travel less distance if she has stored the supplies in the appropriate centers.

While performing a job, there are phases of one's work which can be examined to determine whether or not work simplification principles could be applied. The homemaker should notice whether she handles one tool or piece of equipment several times when it could have been handled once for several operations. Sometimes whole jobs as well as parts of jobs could be combined. For example, some types of vegetables may be prepared for several meals and stored in the refrigerator. Also one can cut down on motions by preparing such dishes as casseroles where the same utensils used for cooking can be used for serving. Therefore, there are less dishes to wash.

The distances which one reaches to obtain articles in the kitchen can be reduced by the planning of storage. One needs to be aware of the equipment which they use most often in kitchen tasks and then place them in the most accessible areas.

A research study relating to easy reach has been reported from Cornell University, New York, where it was found that for the average person, the easiest reach was at elbow height, that a reach 10 inches higher than that used twice as much effort and a reach 72 inches required 4 times the energy of the elbow height and reaching a distance of 3 inches from the floor used 19 times as much energy as the elbow reach. Thus, we might define the easiest reach as within the area from shoulder height to just below the hip-line. (16)

Thus, to have the most efficient placement of goods, one needs to consider where the least amount of energy is expended in obtaining articles from the storage place.

Work simplification principles are also helpful in eliminating the retracing of steps. A wheelchair housewife can save much time if she uses a lap tray in doing certain kitchen tasks. For instance, when setting the table, if one would place all of the dinnerware and silverware on a lap tray only one trip from the kitchen area to the dining area would have to be made.

The heights at which one works is also involved in work simplification. When a wheelchair housewife works at a surface which is adjusted for her comfort, she is able to do a task with more ease. "The height of the place where you do your kitchen jobs makes a great difference in the day's work. Stooping, bending, reaching must all be considered." (26)

The last step in meal preparation is clean-up. When clearing away items, if the mix center is located next to the sink one does not have to manipulate the chair such great distances. If a counter connects the mix and sink centers one can conserve energy by sliding the soiled items from the mix area to the sink. Therefore, energy is conserved. The storage area where clean dishes and utensils are placed also needs to be near the sink center to eliminate excess movement.

For wheelchair homemakers to overcome their difficulties in accomplishing kitchen tasks, they should learn to use work simplification principles in planning an efficient and functional kitchen. Using independent learning packets is a convenient method of study because the homemaker can use them at home and participate in what specifically applies to her situation.

Independent learning packets were developed in this study and made available to three wheelchair women. To explain the procedure of this study, the subsequent chapter contains the method of research.

CHAPTER III

METHODOLOGY

By studying kitchen planning as it related to the physically handicapped, this researcher found that there was a definite need for contributions to be made in rehabilitating homemakers so that they could accomplish household tasks. This discovery lead the writer to analyze ways in which wheelchair homemakers could learn more efficient methods of doing their tasks. To apply work simplification principles to kitchen jobs seemed to be the most beneficial in eliminating time and energy in doing tasks. One of the questions which came to mind was what would be an appropriate method to convey work simplification principles to handicapped individuals on kitchen planning.

Independent learning devices seemed to have possibilities for this study so the researcher investigated this type of curriculum design. Self-help learning seemed to offer numerous possibilities such as availability, choice of activities, convenient time, etc. Therefore, this learning tool was selected for this study. There are four main areas in which the writer became involved: kitchen planning, some characteristics of physically handicapped homemakers, work simplification principles and independent learning.

By becoming involved with some wheelchair homemakers, the researcher felt she could observe them doing tasks and thereby become acquainted with some of their needs and working habits.

The writer contacted various persons in Stillwater to locate some wheelchair women in the area. Some of the sources which were consulted to find information concerning wheelchair homemakers were the Department of Public Welfare, County Health Center, Stillwater Sheltered Workshop and various Oklahoma State University personnel and other individuals.

For her study, the researcher wanted wheelchair homemakers who were permanently confined to wheelchairs, were restricted to the use of a conventional kitchen, prepared meals regularly in their homes and were willing to use and evaluate the self-help packets developed for this study.

Three persons who met the qualifications set up by the researcher were found in Stillwater. Each of them agreed to participate in the study. The first interview was scheduled with the women by telephone. The purpose of this visit was to become acquainted with the wheelchair individuals and to determine by visiting with them what areas in the kitchen they felt presented the most difficulty in accomplishing tasks.

Various components of the kitchen were mentioned by the women. Those areas mentioned by each person were kitchen planning, storage, kitchen equipment and tools, and work heights.

After determining through conversation in what specific areas of the kitchen the three wheelchair housewives had difficulties, the researcher conducted a pilot study on each of the three women's kitchen storage. By doing this investigation the writer hoped to determine whether or not the application of work simplification principles would help to eliminate some of their homemaking difficulties.

The three wheelchair homemakers used in this study had varied situations. However, they each had a kitchen in which they spent a portion of their day. At this time the writer would like to introduce the women with whom she worked. To illustrate the layout of the homemakers' kitchens and the storage areas they contained, drawings of each kitchen have been included.

Case Study No. 1 (Miss "X")

Miss "X" is a single homemaker between 20-25 years of age. She graduated from Oklahoma State University recently, and is now doing graduate work. Besides going to school this individual is a lab assistant on campus.

Miss "X" has been a victim of polio since she was one. It seems she has accepted her disability because one day Miss "X" made the comment that there is nothing she cannot do if she makes up her mind to do so. Miss "X" lives alone and eats the majority of her meals at home. Therefore, she has experience in doing kitchen tasks.

Miss "X" has use of both hands. Her right hand is normal but her left was paralyzed until she was eight years old; therefore, it is weak.

Finding a place to live was somewhat of a problem for this individual. Miss "X" wanted an apartment close to campus so she could use her wheelchair as her means of transportation to and from classes. This person eventually found the small three room house in which she is now living.

In the house, the bedroom and the kitchen are combined. The range and refrigerator are in this room but the only sink in the house is

located in the bathroom. Miss "X" made the comment that the absence of a sink is the most inconvenient aspect of the kitchen area.

Miss "X" does not have any wall or base cabinets in her kitchen. To have a place to store items, she has obtained a desk on which shelves have been built and also a card table on which she leaves articles. Therefore, storage space is definitely limited in this individual's situation.

As a result of not having cabinets in which to place items Miss "X" leaves many objects on top of the desk and card table. She also has two wheelcarts which give space on which to place some items.

Miss "X's" kitchen and storage arrangements are included as Appendix A.

Case Study No. 2 (Mrs. "Y")

Mrs. "Y" is a wheelchair homemaker 25-30 years old who has been married less than one year. Since September she and her husband have been residing in a rented apartment in Stillwater. Mr. "Y" is completing his advanced degree.

Mrs. "Y" is a college graduate with a degree in sociology. While in Stillwater, she is being employed by one of the Oklahoma State University departments.

Polio at the age of 14 is the cause of this homemaker's disability. She has no use of her legs. The polio also affected her upper extremities. For instance, before she had polio this individual was right handed. However, many of the muscles in her right hand were affected and have not fully developed. The left hand has more strength; therefore, she uses it to a greater extent than her right one now.

Mrs. "Y's" left arm is limited in use. She can reach upward only a short distance with her left arm. By using her right hand to push her left arm, Mrs. "Y" can reach a greater distance. The most difficult area for this individual to reach is the "middle area." This is from the space where she can reach comfortably to the height her left hand is after her right hand pushes it into this position.

To get some clues as to the areas the homemaker needed to modify her kitchen, the writer asked her what kitchen tasks her husband performed. The wife made some comments which related to stored items. For example, Mrs. "Y" said that if her husband was home he would remove the dinnerware and serving dishes from the cabinet because they were so much easier for him to reach.

This handicapped housewife also indicated that after the meal Mr. "Y" would place the soiled dishes on the counter by the sink and put away other items which had been used for the meal.

Mrs. "Y" seems to think that one of the most inconvenient areas of storage in her kitchen is a top freezer in the refrigerator which has a door that opens from the top. Also she realizes that having to open and close cabinet doors results in manipulating her chair greater distances.

Mrs. "Y" had previously made some improvements in her storage. For example, she placed her flatware in a divided container so it is easy to grasp. Also the tools Mrs. "Y" uses in food preparation are located on the counter by the range in a pottery container.

The homemaker has a lapboard which she uses in the kitchen. The majority of time it allows her to get all of the items she needs from one location by making only one trip to that storage area.

Long handled tongs which Mrs. "Y" has purchased also aid her in reaching light weight articles from harder to reach storage places. She carries the tongs on the side of her wheelchair.

On the first visit into Mrs. "Y's" home, she said, "I want to tell you how much progress I have made in preparing meals." She told that her first cooking experiences were not until after she and Mr. "Y" were married. The homemaker commented that her husband's favorite dessert was chocolate pudding, hence one afternoon she decided to prepare some pudding for dinner.

Before Mrs. "Y" achieved a finished product, she became discouraged because it was taking her so long. However, she finished making the pudding and they enjoyed it for dinner. Since then, Mrs. "Y" has been making chocolate pudding in her microwave oven which takes less time.

Mrs. "Y" has progressed to the point now where she commits herself each week to try one new recipe and on that particular evening they usually have a guest for dinner.

See Appendix B for the kitchen and storage arrangements in Mrs. "Y's" home.

Case Study No. 3 (Mrs. "Z")

Mrs. "Z," who participated in the study, is a widow approximately 65-70 years of age. Mrs. "Z" has lived in her present home for approximately 20 years. Her son resides with her. She has three married children but they are not living in the Stillwater area. The majority of food preparation Mrs. "Z" engages in is for two people.

This individual has arthritis, which approximately five years ago confined her to a wheelchair. Before having this limitation, she was very active and spent many hours in the kitchen. This homemaker tends to reminisce back to times when she could walk and prepare a large meal for her entire family.

The wheelchair this homemaker has does not have the footrest. She continues to exercise her legs by moving them along in front of her chair. This individual is right handed and it is affected by arthritis. Only the thumb and first finger on the right hand can be straightened; however, she uses the other three fingers as a type of hook for various tasks. Mrs. "Z" can manipulate her chair by placing those three fingers around the wheel.

Domestic help comes into Mrs. "Z's" home one-half day a week. However, her helper does not become involved in very many kitchen activities. Her job consists mainly of cleaning the house.

Mrs. "Z's" son helps in doing several kitchen tasks. She does not do the dishes nor does she help in putting them away. These are two of her son's duties. Also draining hot water off of vegetables is a job avoided by this wheelchair homemaker.

In Mrs. "Z's" kitchen, the sink is the most inconvenient center. Since the sink is placed diagonally in the base cabinet, this makes it difficult for the wheelchair homemaker to use. See Appendix C.

The writer observed several features this homemaker had that helped her kitchen meet some of her storage needs. For instance, she had placed small containers in one of the base cabinet drawers in which flour, corn meal, sugar, and vinegar were stored. Also a pan in a drawer held the seasonings which she used most frequently; therefore,

they are at a convenient level for her to reach.

A pull-out shelf under the range top makes an excellent place for Mrs. "Z" to do many jobs. She leaves her electric skillet on this shelf because she uses it frequently. This individual has also made some provisions for hanging up her measuring spoons, cups, and other kitchen tools. Therefore, Mrs. "Z" has done some thinking on how storage in her kitchen can be made to better meet her limitations.

Reach

To help determine where items should be stored in the kitchen in relation to the individual's reach, each homemaker's vertical and horizontal reaches were determined. In finding the maximum vertical reach, the subjects made a right, left and straight approach to an area on which white paper had been placed. The homemakers held a pencil perpendicular to the paper and made an arc at the highest and lowest point that they could reach. To make the straight approach, the reach was limited to the most useful hand.

The horizontal reach of each wheelchair woman was also found. This involved finding the width and depth which each could reach. An adjustable ironing board at a comfortable height with a piece of cardboard covered with white paper on which the women marked was used for the surface. Each woman held a pencil perpendicular to the surface. With straight posture, and her elbow stiff, she drew an arc with each hand. This arc illustrated the width and depth which she could reach at a fixed position.

After determining the subjects vertical and horizontal reaches and drawing a floor plan of each of their kitchens, the homemakers went

through the procedure of preparing a simple meal of frequently prepared food items. By observing the women working in their kitchens, the writer learned some of their work habits and also saw where they stored various items in their kitchens.

Process Chart

Each step the homemakers became involved in was recorded by the writer. The researcher prepared a process chart illustrating the movements made in meal preparation.

The researcher then analyzed the process chart and the areas where items were stored. She then suggested modifications involving work simplification principles that she thought would help the homemakers in accomplishing their kitchen tasks.

After various adjustments were made in the women's kitchens, they then prepared meals identical to those previously made. A second process chart was prepared and then the first and second charts were compared for the number of feet traveled.

In the pilot study, there was a remarkable decrease in the feet traveled by each homemaker in the second meal prepared as compared to the first. Applying work simplification principles in kitchen storage reduced chair manipulations in meal preparation.

Learning Packets

After completing these case studies on storage and seeing how beneficial work simplification principles can be to wheelchair individuals, the researcher selected three areas in which to develop work

simplification packets on kitchen planning. These packets will be discussed in Chapter IV.

CHAPTER IV

DEVELOPMENT OF LEARNING PACKETS

Kitchen planning, storage, and kitchen equipment and tools were indicated by the wheelchair homemakers as being areas in the kitchen in which they needed assistance. The writer reviewed various independent learning devices which had previously been written. In deciding on the format of the self-help packets, the researcher wanted to include a variety of activities; thereby, providing the wheelchair homemaker with the opportunity of selecting the type of learning device with which she would rather become involved.

When developing the packets, certain categories were included in each. At the beginning of each packet, information is presented in manuscript form. Following this section, there is a question and answer division, then various types of learning activities follow. At the end of each packet there is included a suggested reading list for those who wish to work further in a particular area. An illustration concludes the content of the packets. Its purpose is to convey a main idea in the independent learning device in visual form.

After the writer had developed the packets, three wheelchair homemakers used and evaluated each of them. The three independent learning devices were distributed to each homemaker at a convenient time for her to use. She was allowed four days in which to complete the lessons.

After the women had finished the self-help packets, the writer met with each woman individually and discussed the value of the packets and features which could be improved.

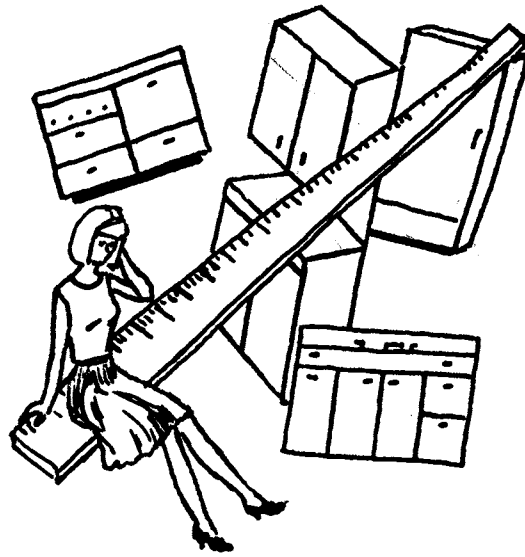
At this time each independent learning device will be discussed individually.

Lesson I is entitled "Planned Kitchens Make a Difference." In this self-help packet, the researcher attempts to acquaint the homemakers with the various centers in the kitchen. Other phases of kitchen planning found in this packet are the four types of kitchen assemblies and the work triangle.

Also modifications which disabled homemakers could make in their kitchens are included in "Planned Kitchens Make a Difference." In some instances the suggestions made would involve remodeling their present kitchen or including the ideas when building a home. However, there are also some simple adjustments mentioned which one could easily perform. The information in the packets could have been presented in more detailed form but the wheelchair homemakers still seemed to benefit from "Planned Kitchens Make a Difference."

When conversing with Mrs. "Z," she made a comment about how much more convenient the sink in her kitchen would be if it had open space for her knees as suggested in the packet. In a previous visit, she had mentioned the sink as being a problem area in her kitchen. Therefore, Mrs. "Z" related ideas in the packet to areas in the kitchen which confronted her with difficulties. The self-help packet "Planned Kitchens Make a Difference" is included below.

Planned Kitchens Make A Difference



IDENTIFICATION PAGE

Title: Planned Kitchens Make a Difference

Subject: Arrangement of Kitchens Into Centers

User: Wheelchair Homemakers

Objectives:

- (1) To familiarize homemakers with the role of centers in planning an efficient kitchen.
- (2) To acquaint oneself with the recommended sequence of centers in the kitchen.
- (3) To learn the four types of assemblies that are used in kitchen planning.
- (4) To see the relationship of kitchen centers in the form of a work triangle.
- (5) To learn some modifications which can be made in a conventional kitchen that will help wheelchair homemakers meet their limitations.

Instructions:

The following activities are some suggestions to help you meet the above objectives. You may engage in all of the activities or you may wish to do only the portions of the packet which will be the most beneficial to you.

PLANNED KITCHENS

MAKE A DIFFERENCE

At a time when considerable emphasis is being placed on streamline living, one finds that it is significant to plan functional homes which allow for easier living for the physically handicapped homemakers. Some impaired women cannot return to their homemaking tasks unless their kitchens are modified to meet their limitations.

When a housewife is using a wheelchair one of her chief concerns is the design of her kitchen. In the majority of cases, only minor modifications need to be made in the kitchen so the homemaker can continue her usual activities. However, if one is planning to remodel or build a kitchen there are detailed phases of kitchen planning that will be beneficial to know.

A phase of kitchen planning which one would need to consider would be the work or activity centers. There are four main areas of activity in the kitchen. Each center is named for the major piece of equipment in it. These are the refrigerator, mix, sink, and range centers. Space in each center needs to include counter area, storage space, and the appliances required for the activities in that area. It has been found that the sink center is used most frequently.

A recommended sequence has been established for kitchen counters. For a homemaker who is right handed, the sequence is from right to left which indicates that the refrigerator is at the right end of the assembly, followed by the mix, sink and range centers. In planning work areas, one needs to consider the placement of tall appliances, such as a built-in oven and refrigerator. These pieces of equipment should be

placed at the ends of the assembly so they will not hinder the flow of work from one center to another.

Each area should be designed for particular tasks. For example, when combining the ingredients for baking a cake, one should become involved in the mix center. The recommended location for this area is between the refrigerator and sink. One has to manipulate their wheelchair less when the mix center is in this location because more trips are made to the refrigerator in food preparation.

The sink center is used frequently because various phases of food preparation depend on this area. For instance, certain foods must be washed before they are prepared or in some instances water is needed in cooking. This area is also important in doing the tasks related to clean-up. Therefore, the sink needs to have a central location.

Since the sink center is used a great deal, its design is of major importance. One aspect which will affect the ease at which a handicapped homemaker does her task in this area is the depth of the sink. When the sink is shallow, the person is allowed to have good posture while using it. The sink needs to be only five inches deep.

If one has open space for their knees under the sink the drain should be at the back. This allows one to have more knee room and also eliminates the possibility of getting burned on hot pipes.

Other features which save energy can be added in the sink center. For instance, a built-in spray hose is handy to use in rinsing dishes or cleaning vegetables. If a dishwasher is in the kitchen it should be adjacent to the sink. Therefore, if one rinses their dishes at the sink before putting them in the dishwasher, they would not have to move their chair but merely reach from the sink to the dishwasher, which

would save one time and energy.

The range or built-in surface unit is included in the range center along with the built-in oven. One of the main points to be remembered about this area is that there should be counter space on each side of the range or surface unit on which to set items. This will eliminate having to travel some distance before being able to place the item on the work top.

Another point one might want to consider is that a range or built-in surface unit should not be placed below a window. This creates cleaning difficulties for women who are confined to wheelchairs because they cannot reach the window on which grease will accumulate. Also this location of a range eliminates the use of a ventilating hood which is desirable over these appliances.

In the range center there are other areas which one needs to be concerned with in relation to their reach. For example, when one is seated in a wheelchair they cannot easily grasp items that are on the back burners of the range. Therefore, all of the burners should be located at the front of the counter so they will be easy to reach. The controls for the burners should also be conveniently located for the individual.

The height and location of the oven can also influence one's ease of accomplishing tasks in the kitchen. A separate oven from the range which has been adjusted to the correct height for the handicapped homemaker has been found to be convenient. In a wall oven, the shelf which is used most often should be placed at the same level as the counter. This allows one to be able to slide pans from one location to the other.

A phase of kitchen planning which is interrelated with the centers

is the work triangle. This triangle is formed by connecting the centers of the refrigerator, sink, and range or built-in surface unit with imaginary lines. It has been found that if the length of these lines do not exceed 23 feet and if they form some kind of a triangle one can save time and energy when preparing a meal because less moving is involved.

When arranging a kitchen, one should consider the location of the work triangle and eliminate the possibility of traffic going through this area. This is important because the homemaker will be moving her chair within this space during meal preparation and if children are passing back and forth through the same area accidents might occur.

There are four basic types of assemblies, or groupings of centers, for kitchens. The simplest arrangement is the one-wall assembly. In this type, the centers are located in a straight line. In many cases, due to the length of the assembly it is inefficient because the "work triangle" becomes too large, and, in fact is practically nonexistent.

Another type of assembly is "L" shaped. This assembly is derived by turning the straight line arrangement around one corner. An advantage of this arrangement is that there is ample space within the kitchen area for a table. Depending on the size of the room there might also be adequate space for a laundry area or a planning center.

Combining the laundry center with the kitchen can be very beneficial for wheelchair housewives. This allows them to plan their activities in both areas so they will coincide with each other; therefore, accomplishing several tasks while in one room of the house. This eliminates one having to manipulate their wheelchair such great distances.

The corridor assembly is in two parts with the work centers on opposite walls. This type of kitchen ranks high in efficiency if it is not used as a traffic artery. An advantage of the layout is that it does not have inside corners which are difficult to clean or which present storage difficulties for one in a wheelchair because they cannot reach the depth of the counter.

The "U" shape kitchen is the most compact and eliminates through traffic. Work counters are continuous and centers are at right angles in this arrangement. This allows impaired homemakers who are limited in the use of their hands and arms to slide items from place to place instead of lifting. This arrangement also allows for wall storage or windows. However, there is no space available for a dining area.

Therefore, one who is confined to a wheelchair would definitely need a wheeled-cart on which to take dinnerware, flatware, and food to the dining area from the kitchen and vice versa. A lapboard on one's chair would also help in the transfer of items. Advantages and disadvantages exist in each assembly; therefore, one must evaluate the various types and select the most appropriate for an individual's situation.

There are still other phases of the kitchen which are of importance. Some of these are storage of items, counter heights, clearances for activities, adequate lighting, and proper ventilation.

Since the kitchen is only one room and in most houses relatively small, it seems on the surface that anyone could put together an efficient kitchen without much planning. However, this idea is an illusion. When planning a well organized kitchen, one becomes involved in a difficult but challenging experience.

LEARNING ACTIVITIES

Below are some suggested learning activities to help you increase or refresh your knowledge on kitchen planning. You may not choose to engage in all of the experiences. Do the ones which will be of most benefit to you.

Learning Activity A:

Instructions: 1. Read the paragraphs of information.
2. Answer the following questions.
3. Check your response with the correct choice given below each question.

1. When planning kitchens, the design of work centers is important.

One modification which can be made in a conventional kitchen for wheelchair homemakers is to allow open space for their knees under the counters. Knee space should be a minimum of 24 inches wide and 24 inches high.

Question:

In planning a kitchen for a wheelchair housewife, one can make their work centers more functional by

- a. eliminating counter space by the range for ventilation
- b. placing a window over the range for ventilation
- c. furnishing open areas under the counters so they can roll under the work top to do their activities

Correct Choice:

c. furnishing open areas under the counters so they can roll under the work top to do their activities

2. The term sequence in kitchen planning refers to the series in which the centers are located. The recommended arrangement of centers for a right handed individual is from right to left. This order indicates that the refrigerator center is followed by the mix area, sink and then range.

Question:

For a right handed person, what is the correct sequence of the centers?

- 1.
- 2.
- 3.
- 4.

Correct Choice:

1. refrigerator
2. mix
3. sink
4. range

3. The sink is the heart of clean-up activities. There are two important points one needs to consider in this center. They are to have stacking space on both sides of the sink and to have the sink easily accessible to both the preparation center and serving center.

Question:

The sink center should possess which of the following characteristics?

- a. The sink should be located at the right end of the assembly.
- b. There should be counter space on only one side of the sink for stacking dishes.
- c. The sink should be easily accessible from both the preparation and serving centers.
- d. Counter area needs to be present on both sides of the sink.

Correct Choice:

- c. The sink should be easily accessible from both the preparation and serving centers.
- d. Counter area needs to be present on both sides of the sink.

4. Work simplification can be used in each phase of kitchen planning.

It is a phase of management, which is usually concerned with the resources of time and energy. One can apply these principles in doing a job to make it easier. "Though often described by longer statements the principles of work simplification can be fully expressed in these four words: eliminate, combine, rearrange, and simplify" (Starr, Mary Catharine).

Question:

Work simplification can be summed up in four terms. They are

_____, _____, _____, and
_____.

Correct Choice:

eliminate
combine
rearrange
simplify

5. There are advantages to having an assembly in which the counters are continuous from one center to another. Unbroken counters not only enable the homemaker to find a place to work easily, but they also make it possible to move utensils full of food anywhere on the counter without lifting.

Question:

One advantage of a continual counter is being able to _____

Correct Choice:

Find a place to work easily or move utensils from one center to another without lifting them.

6. In any kitchen planned for wheelchair use it is important to have a minimum of 5 feet of free space between the cabinets and appliances that are opposite each other.

Question:

If a wheelchair homemaker had a corridor kitchen the minimum amount of space between the two wall segments should be _____ feet.

Correct Choice:

5 feet

7. In arranging a kitchen, one forms an assembly. The term assembly in kitchen planning simply means a grouping of the individual centers to form a kitchen.

Question:

To form a kitchen assembly, one must link the _____ together.

Correct Choice:

centers

Learning Activity B:

Draw illustrations of the four types of kitchen assemblies.

What are some advantages and disadvantages of each?

Learning Activity C:

Sketch the floor plan of your kitchen. Determine what form it has.

Does your kitchen have the recommended sequence of centers?

Learning Activity D:

Measure the work triangle in your kitchen. Does it exceed 23 feet?

EVALUATION

Answer the following questions by checking Satisfactorily or Unsatisfactorily. There is also room available under the response for any comments you wish to make.

- (1) Do the suggested modifications given in the packet help you to see how you could save time and energy in doing kitchen tasks?

Satisfactorily _____

Unsatisfactorily _____

- (2) Is the material in the packet presented at an appropriate level for homemakers to use independently?

Satisfactorily _____

Unsatisfactorily _____

- (3) Is the format of the packet easily understood?

Satisfactorily _____

Unsatisfactorily _____

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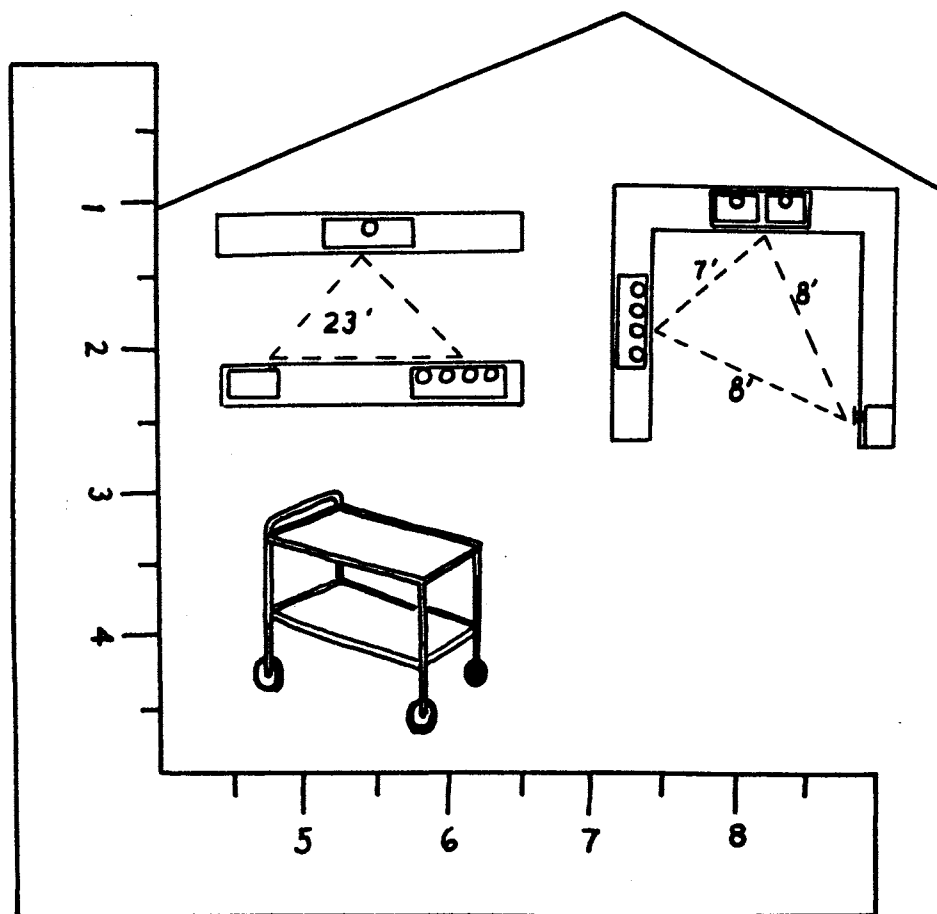
FURTHER STUDY

May, Elizabeth Eckhardt, Neva R. Waggoner, and Eleanor M. Boettke.
Homemaking for the Handicapped. New York: Dodd, Mead and Company,
1966.

McCullough, Helen E. and Mary B. Farnham. Space and Design Requirements for Wheelchair Kitchens. Urbana, Illinois: Agricultural Experiment Station, 1960.

Small Homes Council. Kitchen Planning Guide. Urbana Illinois: University of Illinois, 1965.

Does Your Kitchen Measure Up?

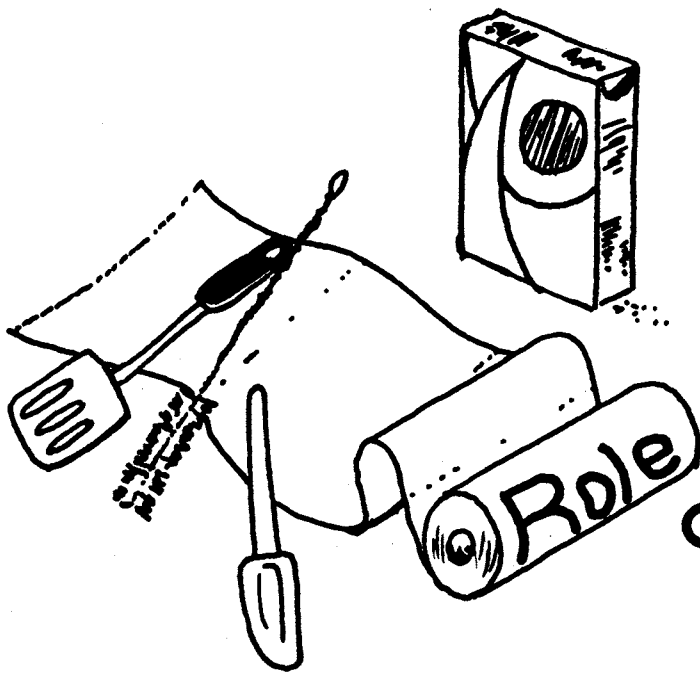


"The Role of Kitchen Storage" was the title given to the second self-help packet. In this learning device, various principles of storage were discussed. Some emphasis was also given to modification which wheelchair women could make so that items would be easily accessible.

The homemakers mentioned various ideas from this packet which would benefit them. For instance, Miss "X" said she did not realize how much easier articles were to obtain by storing them on a step shelf with only like items stacked together.

Mrs. "Y" was delighted to find a convenient method of storing items in the refrigerator which was mentioned in the kit. The use of the turntable in the refrigerator seemed to appeal to her because she could obtain items easier.

Mrs. "Y" suggested that more pictures of kitchen storage should be included in the packet. By using illustrations of various storage arrangements, Mrs. "Y" feels that certain ideas are easier to understand. This individual also suggested that additional information could be made available on the various subjects by the use of pamphlets included in the packets. "The Role of Kitchen Storage" is included in the following pages.



The of Kitchen Storage

IDENTIFICATION PAGE

Title: The Role of Storage in Kitchens

Subject: Work Simplification Applied to Kitchen Storage

User: Wheelchair Homemakers

Objectives:

- (1) To become aware of the four principles of storage.
- (2) To learn various storage devices which wheelchair homemakers can use in modifying their kitchens so time and energy can be conserved.
- (3) To become familiar with areas in the kitchen where items can be stored so they will be easily accessible.

Instructions:

The following activities are some suggestions to help you meet the above objectives. You may engage in all of the activities or you may wish to do only the portions of the packet which will be the most beneficial to you.

THE ROLE OF STORAGE IN KITCHENS

Proper arrangement of stored goods results in many hours and much energy saved. Wise planning of storage makes for a convenient kitchen, whether one is building, remodeling, or rearranging. Many architects, builders, and even women have a false idea about what constitutes a convenient kitchen. Some feel that if a kitchen is attractive that is all that is necessary.

An attractive kitchen does improve one's attitude while working. However, the efficiency which can be gained in proper placement of appliances and adequate storage should not be sacrificed to decoration.

When one becomes involved in rearranging articles in the kitchen to make for better storage, they become involved in work simplification principles. These principles are the same whether they are applied to the kitchen or a task in another area of the home.

Work simplification can be illustrated by looking at storage in each center of the kitchen. Centers should be placed so they will allow for a smooth flow of work from one to another. However, it is also important to have each center complete in itself, which includes adequate storage for the items used first in that area.

Proper arrangement of equipment and supplies prevents one from having to search for items they need. When a handicapped housewife is limited in the strength of her hands or has use of just one hand, she can save energy if her tools and supplies are well organized. For instance, instead of having small bowls stacked inside larger ones, she could have two separate groups which would save her from having to move one item before being able to reach the article she wanted.

In arranging centers, there are four principles which can be applied. These principles are listed below:

- (1) Items should be stored according to how frequently they are used.
- (2) Items should be placed where they are within sight and reach.
- (3) Items should be stored where they are used first and pre-positioned for immediate use.
- (4) Items should be stored in terms of their weight.

These principles are interrelated and definitely influence the arrangement of kitchen work centers.

One should consider the placement of items in terms of how often they are used. The easiest area to see and reach is where one should place the most frequently used articles.

This is especially important for a wheelchair housewife because her reach and vision are limited. For instance, a person who is seated cannot see what is at the back of a shelf in a wall cabinet nor can she reach it; therefore, this would not be an appropriate place to store an item that was used often.

Those items which are seldom used can be located in less accessible spaces. The room for storing items that are never used should be reduced. When one has limited space for storage, it is often helpful to sort over kitchen equipment to see what can be abandoned.

The second principle of arranging supplies in work areas is the placement of articles within sight and within reach. Work is faster and easier if one can rapidly find the needed article. One of the main principles to keep in mind is to store items where they are easy to see, easy to reach, and easy to grasp.

There are various devices a wheelchair woman can use to make items easier for her to obtain. A lazy-susan rotates so items in the back of a shelf can be brought to the front. This prevents one from having to reach. Also step shelves and vertical dividers are ideal for helping one to organize storage.

Pre-positioning is practical in planning kitchen storage. When one pre-positions an article, one locates it according to its first use. Therefore, to pre-position an item in the kitchen, one needs to analyze where each tool and supply will be handled for the first time. Then place it at that particular center, and in such a manner that it can be grasped and put into immediate use. A common example of pre-positioning is the wall can opener because it has been set up where the hand can simply reach out and go to work with it.

Also the weight of the articles needs to be considered by wheelchair housewives when they are arranging items within centers. The heavy articles should be located in the easiest area for one to reach. Then the lighter weight articles placed in harder to reach areas. Long handled tongs can be used to obtain light items which are higher or lower than one can reach but someone else would have to get heavy articles stored in similar locations. Also a rod with a magnet on the end can be used to obtain metal items.

Having kitchen items stored where they are easy to obtain may mean all the difference between the satisfaction of accomplishment or a sense of defeat in doing kitchen tasks. Therefore, adequate placement of articles is an important aspect of kitchen planning.

LEARNING ACTIVITIES

Below are some suggested learning activities to help you increase or refresh your knowledge on adequate storage in the kitchen. You may not choose to engage in all of the experiences. Do the ones which will be of most benefit to you.

Learning Activity A:

Instructions: 1. Read the paragraphs of information.
 2. Answer the following questions.
 3. Check your response with the correct choice given below each question.

1. To make stored items more accessible, one can install half shelves, turntables, racks, and vertical dividers in their cabinets. If used properly each of these devices will allow one to see, reach, and grasp articles with more ease.

Question:

Handicapped homemakers can improve kitchen storage by using _____, _____, and _____ or _____ in their cupboards.

Correct Choice:

half shelves, turntables, and racks or vertical dividers

2. Homemakers do not use the entire counter top when working; therefore, some of the space at the rear is usually wasted. Approximately 6 to 8 inches of room at the back of the work top could be used for the storage of frequently used items because this area is

reachable. If portable appliances are relied upon a great deal in food preparation it would be ideal to keep them in this area permanently.

Question:

In arranging accessible storage space in the kitchen, approximately how many inches at the rear of the counter top is available?

- a. 6 to 8
- b. 4 to 6
- c. 3 to 6
- d. 7 to 10

Correct Choice:

6 to 8

3. A person in a wheelchair may have difficulty in opening a door that swings toward them. They must wheel up to the door to reach the knob, wheel the chair back approximately a foot and draw the door toward them, then back a little more and open the door wider. Sliding doors are not so difficult to open but they still create problems for the wheelchair homemaker. Their main inconvenience is that half of the cabinet opening is exposed at one time. Therefore, bi-fold doors are recommended because they swing easily, opening the entire area.

Question:

For wheelchair housewives, _____ doors are the easiest to manipulate.

Correct Choice:

Bi-fold

4. Since a wheelchair homemaker's reach is limited, it may be difficult to obtain objects from various storage areas in the kitchen. One solution is to make use of the middle area at the back of the counter. Behind the sink, for example, additional storage can be constructed by using a pegboard on which kitchen tools can be hung.

Question:

Tools and utensils can be made more accessible by hanging them in the _____ at the rear of the counter top.

Correct Choice:

middle area

5. Storage in the refrigerator as in every area needs to be organized so items are easy to obtain. To help the homemaker, a turntable could be placed in that area. Small containers can be set on this device rather than placed in front of one another. Door storage in the refrigerator as well as in cupboards can also be utilized.

Question:

Two aids in refrigerator storage are _____ and _____
_____.

Correct Choice:

turntables and door storage

Learning Activity B:

Write down the tasks you perform at each center in your kitchen. Then list the packages, foods, and utensils needed to accomplish these activities. Have the items in the kitchen been stored where they are used first? If not, it would be beneficial for you to make some adjustments.

Learning Activity C:

After the above list has been compiled, arrange the stored items in three divisions: used every day, used every few days, or used once a month or less. Are the items placed according to frequency of use? If improvements can be made in this area of storage you may make some modifications.

Learning Activity D:

Place the vertical divider in a drawer or on a shelf. Put lids, pie plates or other articles in the divisions. These items become easier to see, reach and grasp than if they were stacked one on top of the other.

Learning Activity E:

Place canned goods, glasses or cups on the step shelves. This device allows one to grasp what they need without having to search through several items.

EVALUATION

Answer the following questions by checking Satisfactorily or Unsatisfactorily. There is also room available under the response for any comments you wish to make.

- (1) Do the suggested modifications given in the packet help you to see how you could save time and energy in doing kitchen tasks?

Satisfactorily _____

Unsatisfactorily _____

- (2) Is the material in the packet presented at an appropriate level for homemakers to use independently?

Satisfactorily _____

Unsatisfactorily _____

- (3) Is the format of the packet easily understood?

Satisfactorily _____

Unsatisfactorily _____

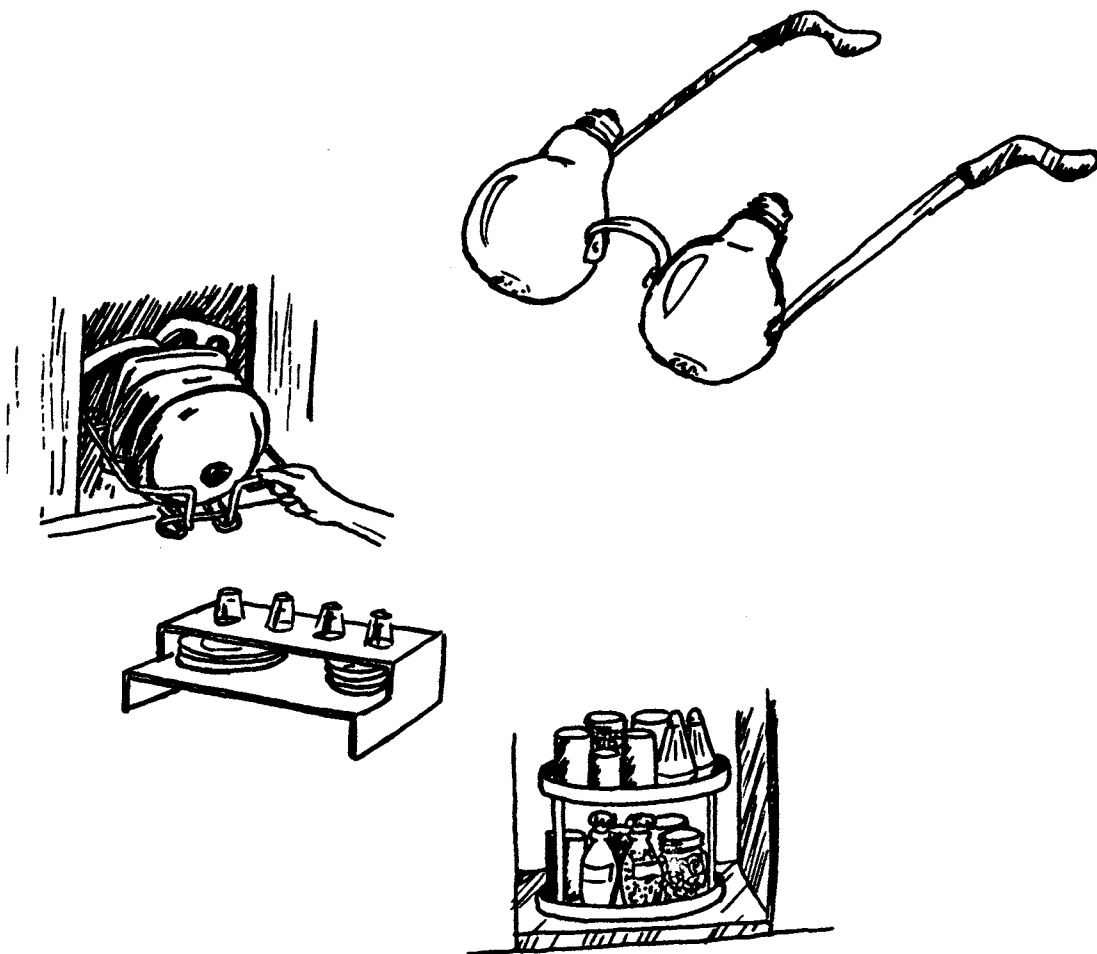
READING LIST FOR

FURTHER STUDY

Klinger, Judith Lannefeld, Fred H. Frieden, and Richard A. Sullivan.
Mealtime Manual for the Aged and Handicapped. New York: Essandess
Special Edition, 1970.

Liston, Dorothy. "Housekeeping on Wheels." Today's Health, 43 (May,
1965), 62-66.

McCullough, Helen E. and Mary B. Farnham. Kitchens for Women in Wheel-
chairs. Urbana, Illinois: University of Illinois, 1961.



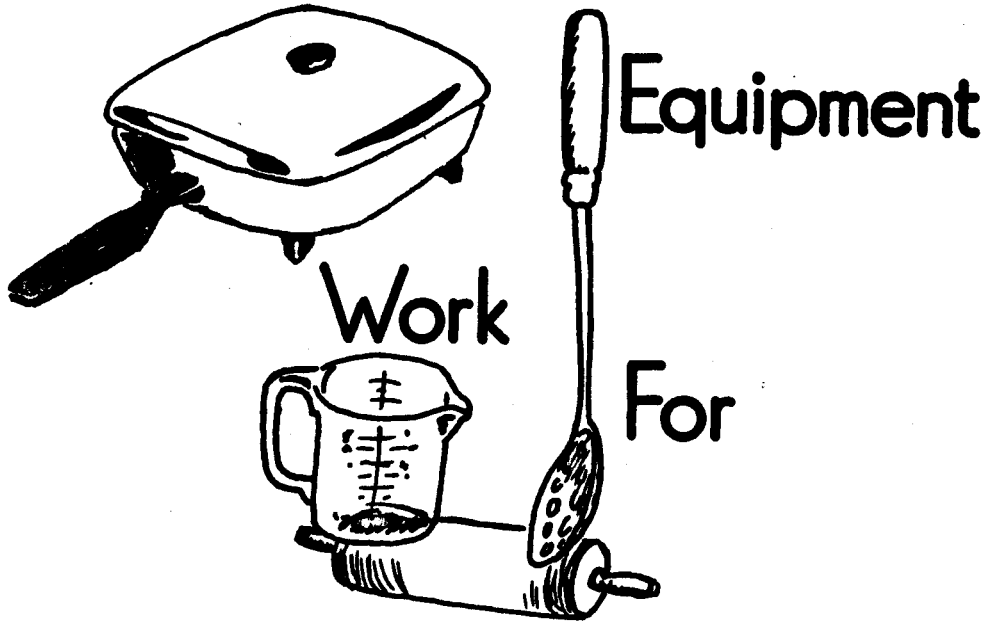
See Kitchen Storage
In A New Light

"Let Kitchen Equipment Work for You" is the last independent learning device used in this study. Providing information to help handicapped homemakers select kitchen equipment was one objective of this packet. It is important for homemakers to use the equipment they have if possible but when they go to buy new items they should know to shop for various qualities.

Suggestions were given in this packet that handicapped women might use in making some modifications in equipment which they possess so that they can accomplish kitchen tasks more efficiently.

Mrs. "Z" commented this packet was of great benefit to her. Since she is limited in the use of one of her hands, many tools mentioned in the kit appealed to her. However, Mrs. "Z" thought the packet would have been of more value to her if all of the tools and equipment mentioned would have been available for her to use. The packet "Let Kitchen Equipment Work for You" has been included in the subsequent pages.

Let Kitchen



Work

Equipment

For

You

IDENTIFICATION PAGE

Title: Let Kitchen Equipment Work for You

Subject: Helping Wheelchair Housewives Select Equipment to Meet Their
Limitations

User: Wheelchair Homemakers

Objectives:

- (1) To review material which will help in making the proper selection of kitchen equipment.
- (2) To learn modifications which one can use that will allow their equipment to be more beneficial.
- (3) To learn about various tools which help a wheelchair person accomplish kitchen tasks.

Instructions:

The following activities are some suggestions to help you meet the above objectives. You may engage in all of the activities or you may wish to do only the portions of the packet which will be the most beneficial to you.

LET KITCHEN EQUIPMENT

WORK FOR YOU

Selection of the proper household equipment and tools are important for the physically handicapped homemaker in accomplishing her kitchen tasks. Considering certain aspects of equipment will help one to make wise choices. Ask these three questions: Is the piece of equipment versatile? Is it durable? Is it easy to clean?

When a homemaker selects utensils and equipment that have versatility, she can simplify her kitchen tasks. For example, the fewer pieces of equipment one has the less storage space is needed. This allows one to place more items that are frequently used in locations which are convenient. Since one's reach is limited when they are confined to a wheelchair, this aspect of tool selection is especially important. A casserole dish which is ovenproof or can be used on top of the range is versatile because it can serve several purposes in the kitchen.

Before purchasing equipment, one should examine the durability of the item. The weight of an article contributes to its durability. It is important that utensils are of a weight that will prevent them from turning over easily. Many women who are in wheelchairs are also limited in the use of their hands and arms. This should be taken into consideration when determining the weight of tools and utensils that would be most appropriate for them. For instance, a woman with multiple sclerosis or muscular dystrophy loses the ability to lift and grasp. So she would want utensils that were light enough for her to lift when she was not able to slide them along a continuous counter.

Pans with double handles are also easier for this individual to manage than single handles.

The wheelchair housewife who does not have coordination in her hands has added difficulty in accomplishing her household tasks. This individual is unlike those who lack strength but retain coordination. The woman who has difficulty in coordination does better if she uses heavier utensils. The weight helps control excessive motion. The construction of heavy pans is good because she must put more pressure on the handles and other parts of the utensils in order to use them.

Washing dishes can be a difficult task for housewives who must remain seated if the sink center is not designed for a wheelchair individual. This is especially true if the area does not have a cut out area under the sink which permits one to roll under the counter. Also if the sink is too deep for one to comfortably reach the bottom they cannot maintain correct posture; therefore, making them uncomfortable. The time and energy spent doing clean-up is also influenced by the selection of equipment one makes. One should choose utensils which require a minimum of care.

For instance, if a handicapped woman was selecting an electric frypan, one with a teflon finish would be easier to clean than one made of aluminum without the special treatment. Therefore, finishes influence the ease with which one can clean an item. Also tools and utensils which are smooth eliminates the handicapped homemaker from having to make manipulations to clean in small grooves.

When a wheelchair homemaker has limited use of one hand, a can or bottle might be difficult to open with a manual can opener because the person may not be able to grasp the turning device or because they do

not have the necessary strength. However, an electric can opener might be helpful unless too much strength is required to operate the piercing lever. Homemakers who do not have strength to hold cans up to the piercing gadget on an electric can opener might use a block of wood to accomplish this task for them.

One of the most difficult tasks for a homemaker with the use of only one arm is to open a tightly closed jar. However, if one would place the jar in a drawer then lean against the drawer, the job would be simplified because only one hand would then be needed to unscrew the lid.

Also to help open screw type jars, one could mount a wedge opener on the wall. Bottle openers can also be placed on the wall to aid those who have limited use of their hands.

There are many other devices which will help a wheelchair homemaker who has use of only one hand. For example, a board with two stainless steel nails will keep most foods in place while one cuts or peels them. Placing a sponge or a suction cup under a bowl will prevent it from turning while the good hand stirs or mixes in the bowl. The knees also provide a handy anchor for boxes or bags of food while one is opening them.

There are other tools designed to help the wheelchair homemaker in the kitchen. For instance, a person who is setting level with the range could easily get splattered with hot grease. So there has been made available lids for utensils which will prevent one from getting burned in this manner. Also strainer lids can be obtained to place on utensils before they are placed on the range. This allows one to drain hot liquid off of foods without burning themselves.

It is helpful for wheelchair women to have cooking utensils that are shallow enough for one to see in them when the utensils are setting on the range. This eliminates one from straining to see the contents in the pan; therefore, decreasing the possibility of burns. Also if the tools that one uses at the range have long handles, the handicapped homemaker would not burn herself as easily when stirring or turning foods.

In buying electrical appliances, the wheelchair homemaker needs to give some serious consideration to what is appropriate for her. For example, would it be safer for her to use an electric frypan, griddle, percolator and other small electrical appliances rather than a conventional range in food preparation? In many cases women can handle these much easier and especially when they are placed on a surface which is the correct height.

Many of the major appliances are suitable for women who work in wheelchairs. However, there are various aspects one needs to consider when selecting an appliance. For instance, refrigerators with a side hinged door on the freezer compartment are more convenient than one which hinges at the bottom. When the freezer door hinges at the bottom, the housewife's reach is hindered to a greater extent because she has to reach across the door before she has access to the compartment. Whereas, if the door is hinged from the side she could merely reach in to the freezer area. Also shelves on refrigerator doors are helpful because this is storage which is easily accessible for the handicapped homemaker.

A separate oven can be placed at a convenient height for a wheelchair person. The shelf which is used most frequently should be located

at counter height so the homemaker will not have difficulty in removing hot utensils from the oven. An oven with a side hinged door is also convenient for those who are confined to a seated position. This factor eliminates the possibility of getting burned on the door when transferring items to and from the oven.

There is also a particular design of dishwasher which caters more to wheelchair housewives. Front loading dishwashers are easier for a wheelchair individual to use because the distance of reach involved. A front loading dishwasher eliminates the homemaker from having to reach down into the appliance to place the soiled items. She can merely pull out the racks in a front loading dishwasher and place the articles in their proper location.

Household equipment and tools are important in helping the impaired homemaker in job accomplishment. It is important for individuals to make the best use of what they have but when one needs additional or new equipment they should purchase items that will definitely help them meet their limitations.

LEARNING ACTIVITIES

Below are some suggested learning activities to help you increase or refresh your knowledge on selecting equipment for the kitchen. You may not choose to engage in all of the experiences. Do the ones which will be of most benefit to you.

Learning Activity A:

Instructions: 1. Read the paragraphs of information.
2. Answer the following questions.
3. Check your response with the correct choice given below each question.

1. Wheelchair homemakers who have hand limitations can use various devices to stabilize bowls. For light weight bowls, one can place the bowl on a damp cloth or on a suction cup. One can also construct a pull-out board, lapboard or a board which will fit over a drawer that has various size holes cut in it to support bowls.

Question:

List two methods a homemaker could use to stabilize a bowl when she has use of only one hand.

- a.
- b.

Correct Choice:

Place a damp cloth under the bowl

Use a suction cup

Place the bowl in a hole which has been cut in a board that fits over a drawer

2. If one has difficulty in grasping items they can make such modifications as substituting the knobs or handles on canisters and pan lids for ones which are larger and easier to obtain.

Question:

Substituting _____ and _____ on utensils can make them easier to obtain for a homemaker who has limited use of her hands.

Correct Choice:

knobs and handles

3. Draining hot liquid off of vegetables can be a dangerous task for a woman in a wheelchair if she does not have adequate strength and if the sink is not at a convenient height for her to reach. There are certain tools which can be purchased to make this task easier and safer for the homemaker. For instance, strainer lids make it possible to drain off hot liquids safely. Also perforated spoons or ladles will help in lifting foods from juice.

Question:

To help drain hot liquids off foods, one can purchase _____
 _____ or _____.

Correct Choice:

strainer lid or perforated spoon

4. When an impaired homemaker is selecting measuring tools, she should be aware of features which will make them more convenient. Measuring containers should be flat on the bottom. This prevents them from turning over easily. Also it is helpful to have liquid measuring cups which are designed to pour. If one hangs their measuring devices they should check to see that the holes in the handles do not require fine finger coordination.

Question:

Measuring devices are easier for a person to use if they have a

_____, _____, and _____
_____.

Correct Choice:

flat bottom

pouring device

large hole in handle for hanging

Learning Activity B:

Place a wet sponge or cloth under a bowl when you are mixing in it.

Does this device help control the movement of the dish?

Learning Activity C:

Prepare a meal using all portable appliances on a convenient work height for you. Then prepare the identical meal using the range. Which method do you prefer? Why?

Learning Activity D:

Use a splatter lid when frying food. Does it reduce the possibility of getting splattered?

Learning Activity E:

Take the pan drainer and use it on a utensil when pouring hot liquids off the food. Is this tool beneficial?

EVALUATION

Answer the following questions by checking Satisfactorily or Unsatisfactorily. There is also room available under the response for any comments you wish to make.

- (1) Do the suggested modifications given in the packet help you to see how you could save time and energy in doing kitchen tasks?

Satisfactorily _____

Unsatisfactorily _____

- (2) Is the material in the packet presented at an appropriate level for homemakers to use independently?

Satisfactorily _____

Unsatisfactorily _____

- (3) Is the format of the packet easily understood?

Satisfactorily _____

Unsatisfactorily _____

READING LIST FOR

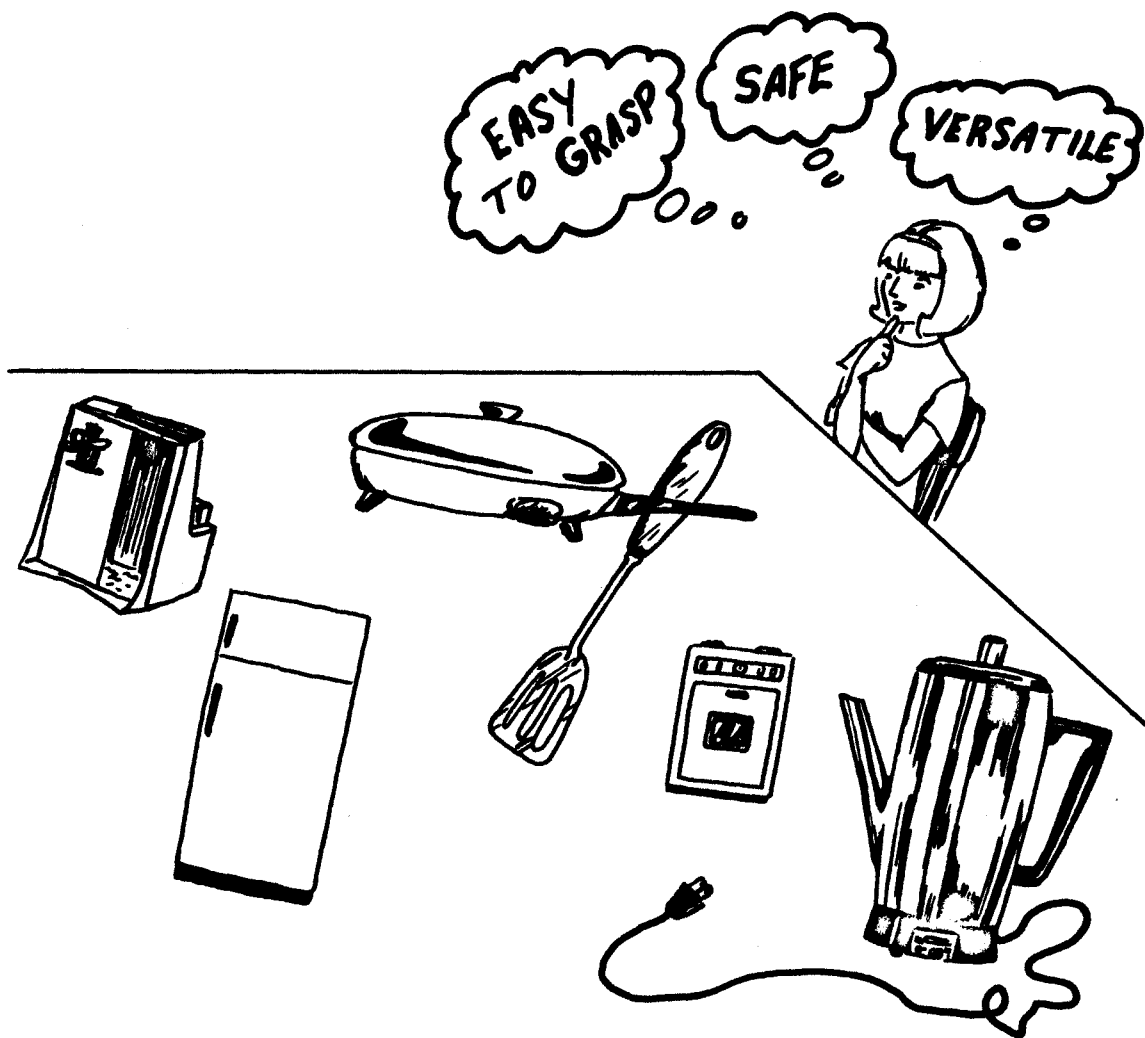
FURTHER STUDY

Klinger, Judith Lannefeld, Fred H. Frieden and Richard A. Sullivan.
Mealtime Manual for the Aged and Handicapped. New York: Essandess
Special Edition, 1970.

May, Elizabeth Eckhardt, Neva R. Waggoner, and Eleanor M. Boettke.
Homemaking for the Handicapped. New York: Dodd, Mead and Company,
1966.

Rusk, Howard A. "Nutrition in the Fourth Phase of Medical Care."
Nutrition Today, 5 (Autumn, 1970), 24-31.

Select Your Kitchen Equipment Wisely



In Chapter V, a summary will be made of this study along with the recommendations made by the homemakers and the writer. Also the conclusion will be included in the closing chapter.

CHAPTER V

SUMMARY, RECOMMENDATIONS, AND CONCLUSION

Handicapped individuals represent various types of people. Wheelchair women who have homemaking as their occupation are a segment of the disabled population. For many women, resuming their household duties is not easy after they have been confined to a wheelchair. Therefore, communities in which these disabled housewives reside need to become involved in their rehabilitation.

An area in which society can contribute to the welfare of wheelchair homemakers is to make available independent learning devices on work simplification in kitchen planning. Self-help packets related to kitchen planning seem to be an appropriate starting point since the kitchen is the area of the home where many of the homemaker's tasks exist. By using the self-help teaching technique, the women can use the educational materials at home in their kitchens when and where they are confronted with difficulties.

In learning various work simplification principles, wheelchair homemakers can modify their kitchen to make them more efficient. By eliminating, combining, rearranging and simplifying tasks in the kitchen, the handicapped homemaker will find that more time and energy is available for other activities.

Wheelchair homemakers can benefit by communities becoming involved with rehabilitation programs. This might include furnishing

independent learning devices through public libraries, city-county offices, etc. From these tools, women can learn about various phases of kitchen planning and why the use of work simplification principles are important.

After the three wheelchair homemakers in Stillwater had an opportunity to use and analyze the self-help packets on work simplification for kitchen planning, the researcher met with each to discuss their reaction to the material. On the evaluation sheet at the back of each independent learning device, the homemakers responded to each question by marking the term "Satisfactorily." However, they wrote some comments which suggested recommendations that could be made in the packets.

Those recommendations given by the wheelchair homemakers were:

1. The self-help packet "Planned Kitchens Make a Difference" could be in more detail. For instance, when the writer mentions that counter space is needed in each center, the amount in feet and inches could have been included.

2. One suggested that more visual aids would be of value in conveying various ideas. Also the packets need to be improved for those who perhaps cannot read or for some other reason prefer to learn by using audio pictorial materials entirely.

3. Another suggestion made was that pamphlets which contain additional information on the various areas of kitchen planning be included with each packet.

4. In the packet "Let Kitchen Equipment Work for You" it was suggested that the tools and equipment mentioned be made available for the handicapped homemaker to use.

5. One homemaker mentioned that the form in which some of the learning activities were to be done might be more clearly understood if a paper showing the format was included in the packet.

Upon completing this study, the researcher also has some recommendations to make.

1. Before creating packets on work simplification for kitchen planning to be used by wheelchair homemakers, it would be beneficial if the writer would confine herself to a wheelchair and perform various activities. By working from a wheelchair, one could better determine in what areas disabled persons need assistance in accomplishing their kitchen tasks.

2. Another suggestion is to develop self-help packets for all of those who are physically handicapped instead of limiting the users to wheelchair individuals. This change would allow more disabled homemakers to benefit from the educational material.

3. A recommendation for further study is to make a return visit to the three wheelchair individual's homes who used the self-help packets and determine what effect they had on their kitchen planning.

4. Expansion of the content presented in the three packets so as to include additional questions and ideas for study and application.

5. Further use of the packets by additional wheelchair homemakers is recommended so that revisions, additions, supplements could be developed.

The writer feels that she gained a great deal from doing this project. Much knowledge was gained in the areas of the handicapped, independent learning, kitchen planning, and work simplification. In working with people, one also learns a great deal and this was one of

the writer's most valuable experiences. It was a delight to work with the wheelchair homemakers because each one was an inspiration.

This study also seemed to benefit the handicapped homemakers. They were grateful that some action is being taken to educate disabled women. The handicapped individuals with whom the writer worked are interested in how their kitchens can be improved. After using the self-help packets, they each mentioned various ideas which they had gotten from the packets that would be of most value in their situation.

The packets in this research study should be made available to homemakers. This researcher is willing for the Family Living personnel of the OSU Extension Service to use the packets experimentally with homemakers who contact the County Extension Center.

BIBLIOGRAPHY

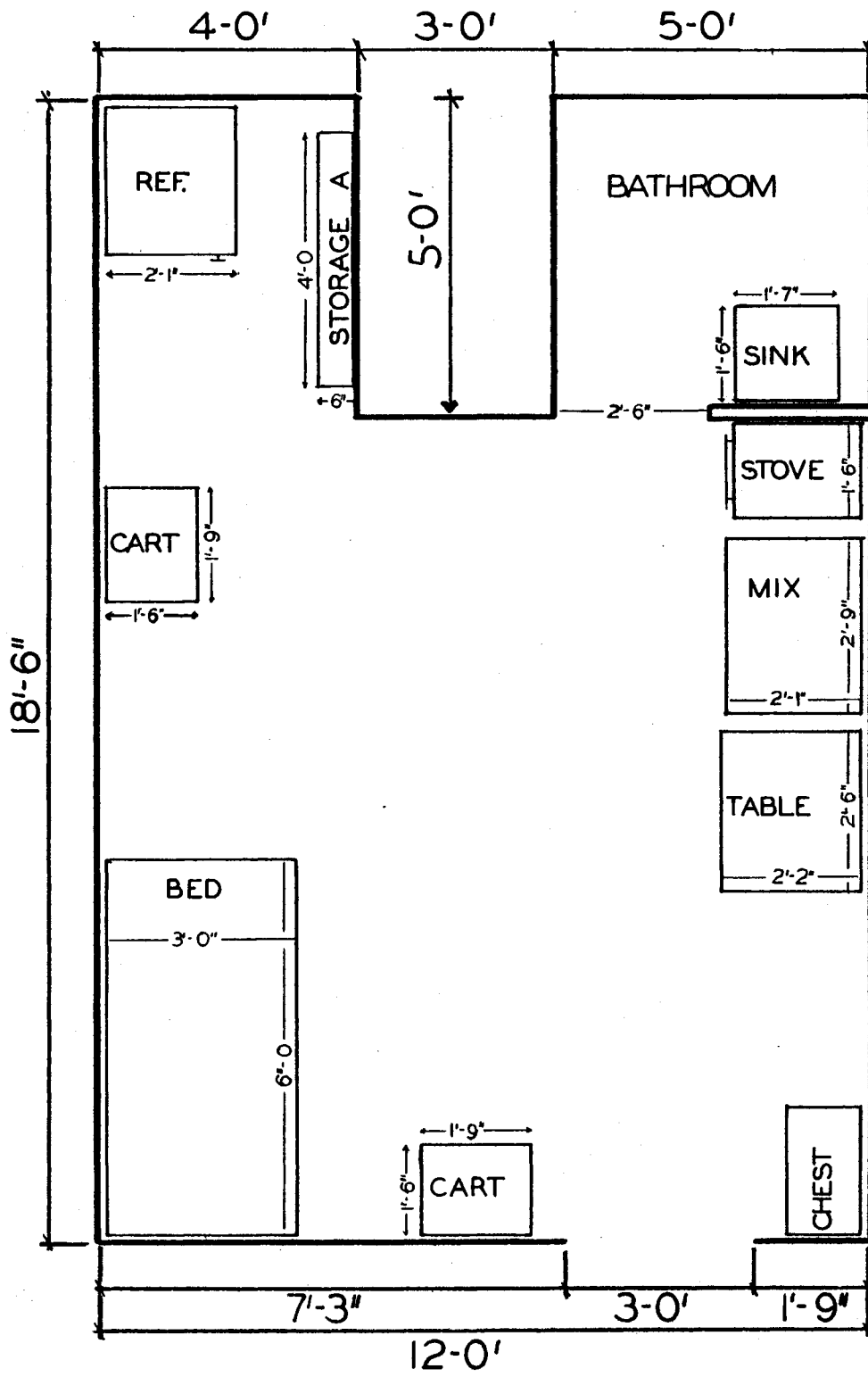
- (1) Allan, W. Scott. Rehabilitation a Community Challenge. New York: John Wiley and Sons, Inc., 1958.
- (2) Anonymous. "Kitchens." American Home, 71 (November, 1968), 63-73.
- (3) _____. Management for Homemakers. Chicago: Household Finance Corporation and subsidiaries, 1948.
- (4) Espich, James E. and Bill Williams. Developing Programmed Instructional Materials. Palo Alto, California: Flaron Publishers, 1967.
- (5) Fairman, Marvin. "Individualizing Instruction." Educational Leadership, 28 (November, 1970), 133-139.
- (6) The Farmer. Cut Your Kitchen Mileage. St. Paul, Minnesota: Webb Publishing Company, 1948.
- (7) Fitzsimmons, Cleo and Nell White. Management for You. New York: J. B. Lippincott Company, 1964.
- (8) Gillies, Mary Davis. The New How to Keep House. New York: Harper and Row, Publishers, 1968.
- (9) Good Housekeeping editors. Guide to Successful Housekeeping. New York: Harper and Brothers, Publishers, 1956.
- (10) Goodyear, Margaret R. and Mildred Chapin Klohr. Managing for Effective Living. New York: John Wiley and Sons, Inc., 1954.
- (11) Grindeland, William D. "The Development of a Multi-Media Kit Program." Audiovisual Instruction, 13 (October, 1968), 865-867.
- (12) Haring, Norris G. "The New Curriculum Design in Special Education." Educational Technology, 10 (June 2, 1970), 24-31.
- (13) Hawkins, Reginald R. The Kitchen Book. New York: D. Van Nostrand Company, Inc., 1953.
- (14) The Institute of Physical Medicine and Rehabilitation. The Functional Home for Easier Living. New Jersey: The William N. Scheer Advertising Agency, none.

- (15) Johnson, Betty Jane. "Work Simplification for Handicapped Homemakers." Forecast for Home Economist, 141 (February, 1960), 64, 69, 76.
- (16) Kettunen, Ruth C. Workshop on Rehabilitation of the Disabled Homemaker. Michigan: compiled by Ruth C. Kettunen and Carol K. Monis, 1961.
- (17) Klinger, Judith Lannefeld, Fred H. Frieden, and Richard A. Sullivan. Mealtime Manual for the Aged and Handicapped. New York: Essandess Special Editions, 1970.
- (18) Liston, Dorothy. "Housekeeping on Wheels." Today's Health, 43 (May, 1965), 62-66.
- (19) Littledale, Harold A. Mastering Your Disability. New York: Rinehart and Company, Inc., 1952.
- (20) Lowman, Edward W. and Howard A. Rusk. The Helping Hand. New York: New York University Medical Center, 1963.
- (21) May, Elizabeth Eckhardt. "Handicapped Homemakers Now Workers." Journal of Home Economics, 60 (June, 1968), 432-434.
- (22) May, Elizabeth Eckhardt, Neva R. Waggoner, and Eleanor M. Boettke. Homemaking for the Handicapped. New York: Dodd, Mead and Company, 1966.
- (23) McCullough, Helen E. and Mary B. Farnham. Kitchens for Women in Wheel-Chairs. Illinois: Extension Service in Agriculture and Home Economics, 1961.
- (24) _____. Space and Design Requirements for Wheelchair Kitchens. Urbana Illinois: Agricultural Experiment Station, 1960.
- (25) Rusk, Howard A. "Nutrition in the Fourth Phase of Medical Care." Nutrition Today, 5 (Autumn, 1970), 24-31.
- (26) Rusk, Howard A. and Eugene J. Taylor. Living With a Disability. New York: The Blakiston Company, Inc., 1953.
- (27) Starr, Mary Catharine. Management for Better Living. Lexington, Massachusetts: D. C. Heath and Company, 1968.
- (28) SVCK's Publication. The Physically Handicapped Housewife. New York: The International Society for the Welfare of Cripples, 1959.
- (29) Switzer, Mary E. and Howard A. Rusk. Doing Something for the Disabled. Washington D. C.: Public Affairs Pamphlet with the cooperation of the National Rehabilitation Association, 1953.

- (30) Tippet, Harry M. "Handicaps." Performance the Story of the Handicapped, 14 (September, 1963), 2.
- (31) U. S. Department of Health, Education, and Welfare. Rehabilitation of the Physically Handicapped in Homemaking Activities. Washington D. C.: U. S. Government Printing Office, 1963.
- (32) U. S. Department of Housing and Urban Development. Housing for the Physically Impaired. Washington D. C.: U. S. Government Printing Office (no date given).
- (33) U. S. Department of Labor. Help for Handicapped Women. Washington D. C.: U. S. Government Printing Office, 1958.
- (34) Vlack, Milton Van. "Curriculum Materials Feature Learning Activity Packages." Educational Screen and Audio-Visual Guide, 48 (October, 1969), 12-13, 28.
- (35) Walker, Kathryn E. "Homemaking Still Takes Time." Journal of Home Economics, 61 (October, 1969), 621-624.
- (36) Wanslow, Robert. Kitchen Planning Guide. Urbana, Illinois: Small Homes Council -- Building Research Council, 1965.
- (37) Wheeler, Virginia Hart. Kitchen Planning for Handicapped Homemakers. New York: The Institute of Physical Medicine and Rehabilitation New York University Medical Center, none.
- (38) Wolfe, Arthur B. and James E. Smith. "At Nova, Education Comes in Small Packages." Nation's Schools, 81 (June, 1968), 48-49.

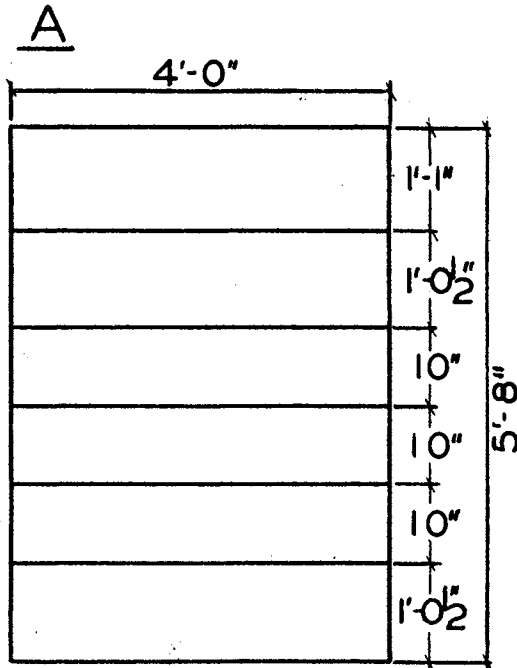
APPENDIX A

MISS X'S KITCHEN AND STORAGE



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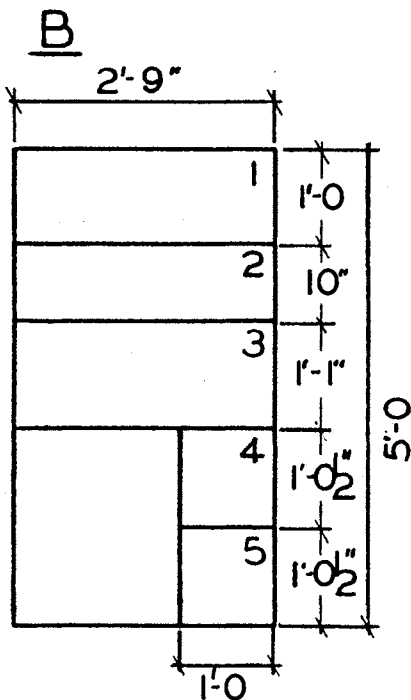
WALL STORAGE ACROSS FROM REFRIGERATOR



CANNED GOODS:

- FRUITS
- VEGETABLES
- SHORTENING
- BROWN SUGAR

MIX CENTER



- 1**
- SIFTER
 - UTENSILS
 - CANISTERS

- 3**
- FLATWARE
 - PARING KNIFE
 - CAN OPENER
 - RUBBER SCRAPER

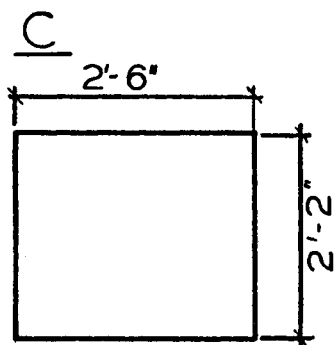
- 5**
- CEREAL
 - CHOCOLATE
 - MACARONI

- 2**
- MIXING BOWL
 - MEASURING CUPS & SPOONS
 - SODA, SALT
 - SPICES, VANILLA
 - DINNERWARE

- 4**
- POT HOLDERS
 - HOT PADS

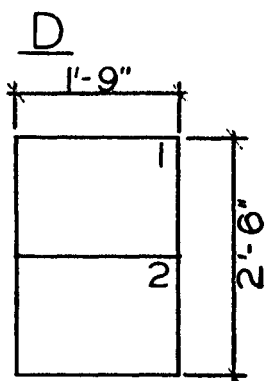
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TABLE



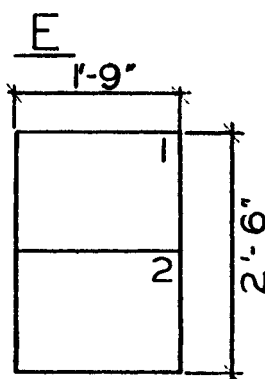
TOASTER - OVEN
DISHES

CARTS



1
DISH DRAINER

2
IRON POPCORN POPPER

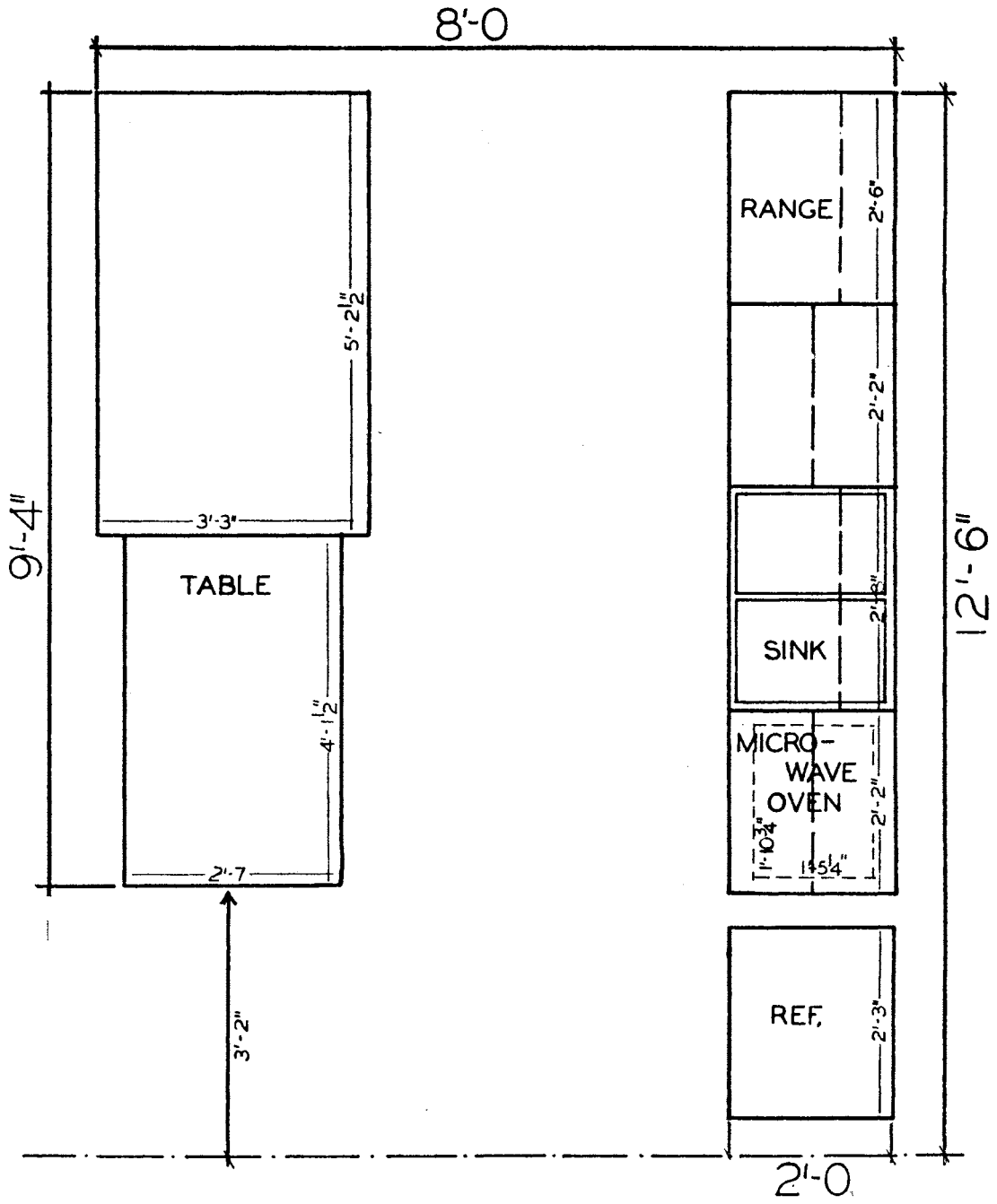


1
ELECTRIC SKILLET

SCALE $\frac{1}{2}$ " - 1'-0"

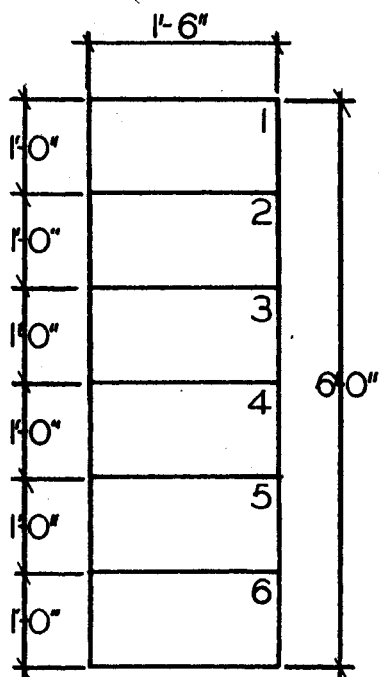
APPENDIX B

MRS. Y'S KITCHEN



SCALE 1/2" = 1'-0

WALL STORAGE

A

1
 CHOCOLATE CHIPS
 MARSHMELLOWS
 SHORTENING, RICE
 STRAWS

2
 LARGE QUANTITIES
 OF FLOUR &
 SUGAR

3
 CANNED GOODS

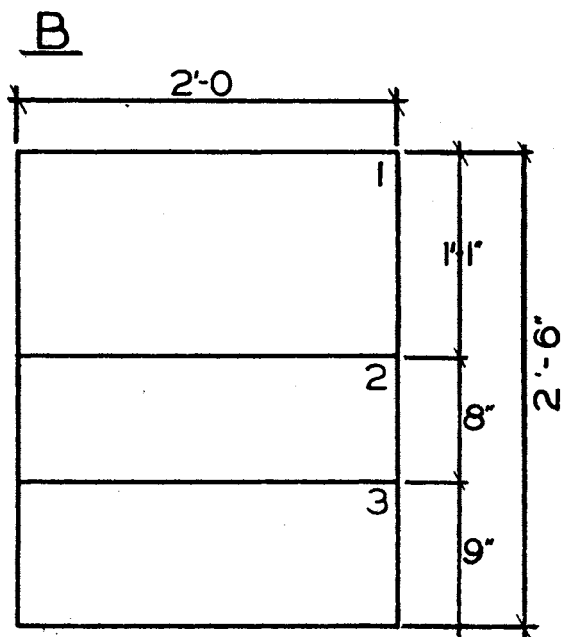
4
 CANNED GOODS

5
 TURN TABLE CANISTER
 CONTAINING FLOUR &
 SUGAR

6
 MIXES, OIL, SYRUP
 POPCORN

SCALE $\frac{1}{2}$ " = 1'-0"

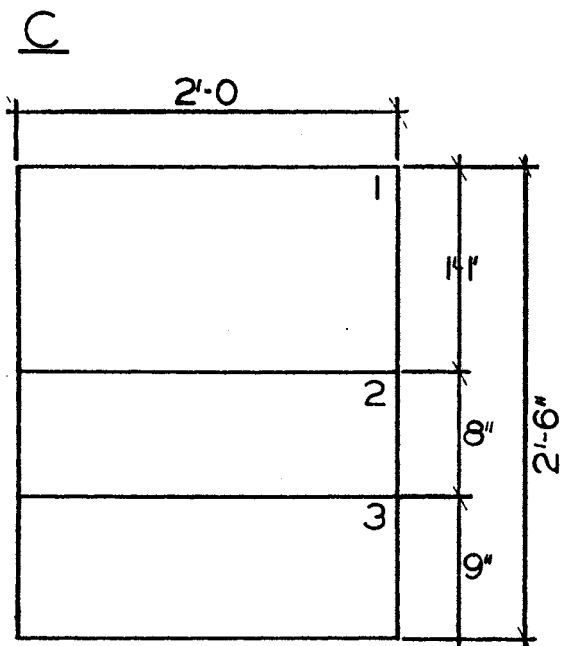
BESIDE REFRIGERATOR



1
SERVING BOWLS

2
DINNERWARE

3
GLASSES, CUPS



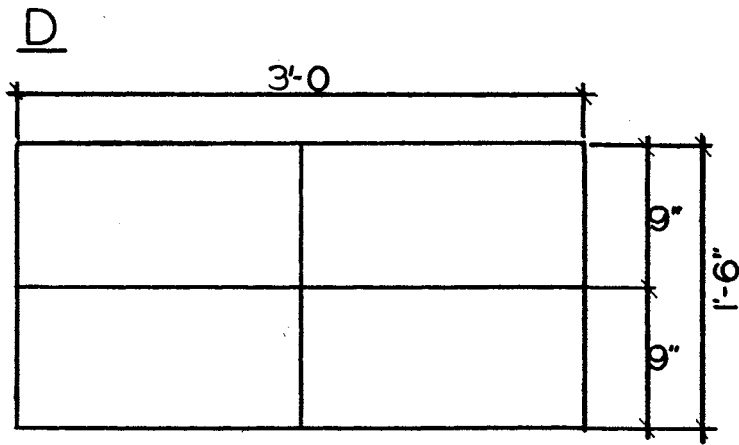
1
MEASURING CUPS &
SPOON, FLATWARE
CAN OPENER

2
ALUMINUM FOIL
MIXING BOWLS
BAKING DISHES

3
TURN-TABLE
CONTAINING
MIXES

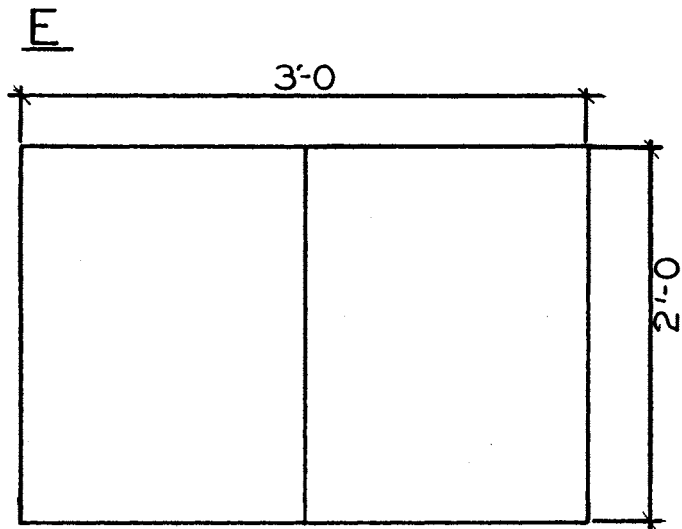
SCALE 1"=1'-0"

ABOVE SINK



CENTER PIECES
EXTRA GLASSES

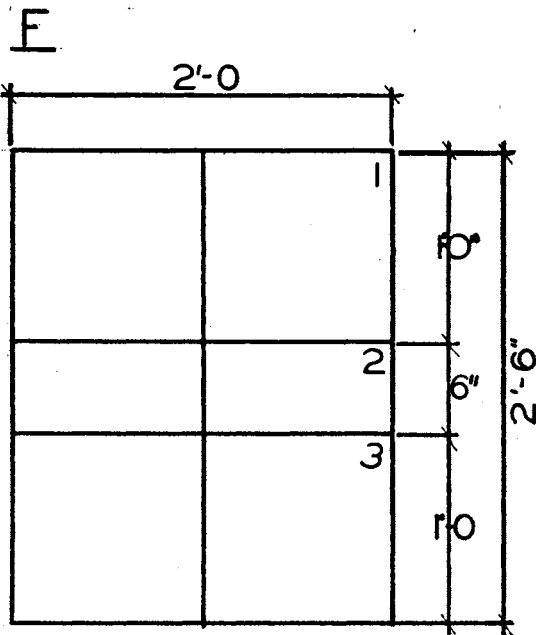
BELOW SINK



WASTE BASKET
DISHWASHING
SUPPLIES,
CLEANING
SUPPLIES

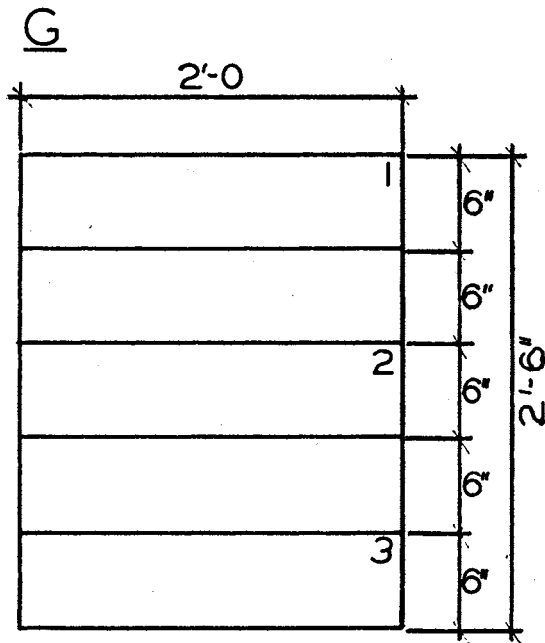
SCALE 1"=1'-0

BESIDE RANGE



1
LARGE PITCHER
CAKE PAN

2-3
SERVING BOWLS
USED IN MICROWAVE
OVEN



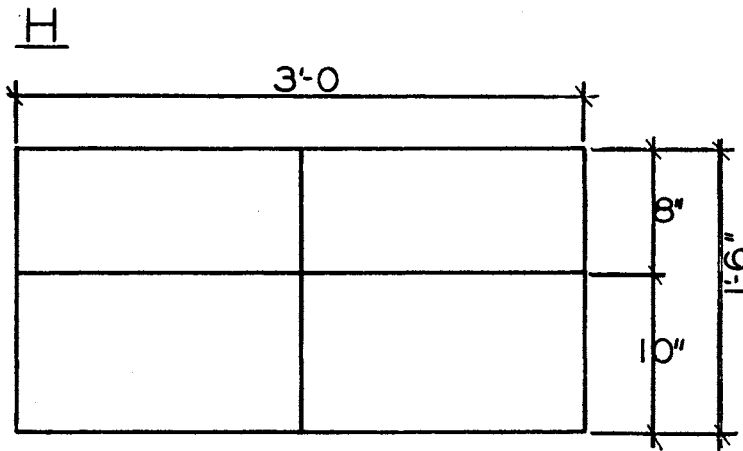
1
MIXER, ROLLING PIN
GRATER, JELLO, YEAST

2
SPICES, VANILLA
STORAGE CONTAINERS

3
DISH TOWELS
CASSEROLE DISH
HOT PADS

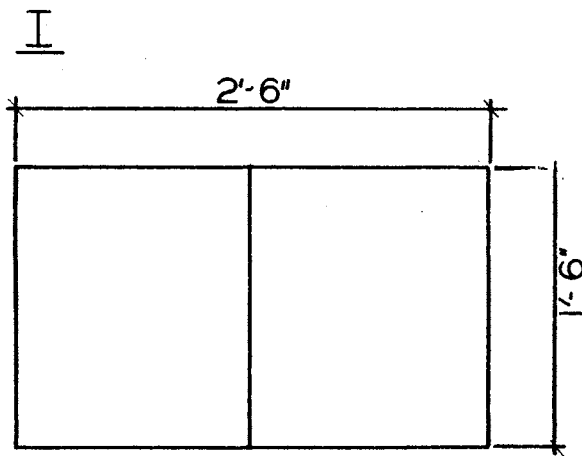
SCALE 1" = 1'-0

ABOVE REFRIGERATOR



FORMAL
DINNERWARE

ABOVE RANGE

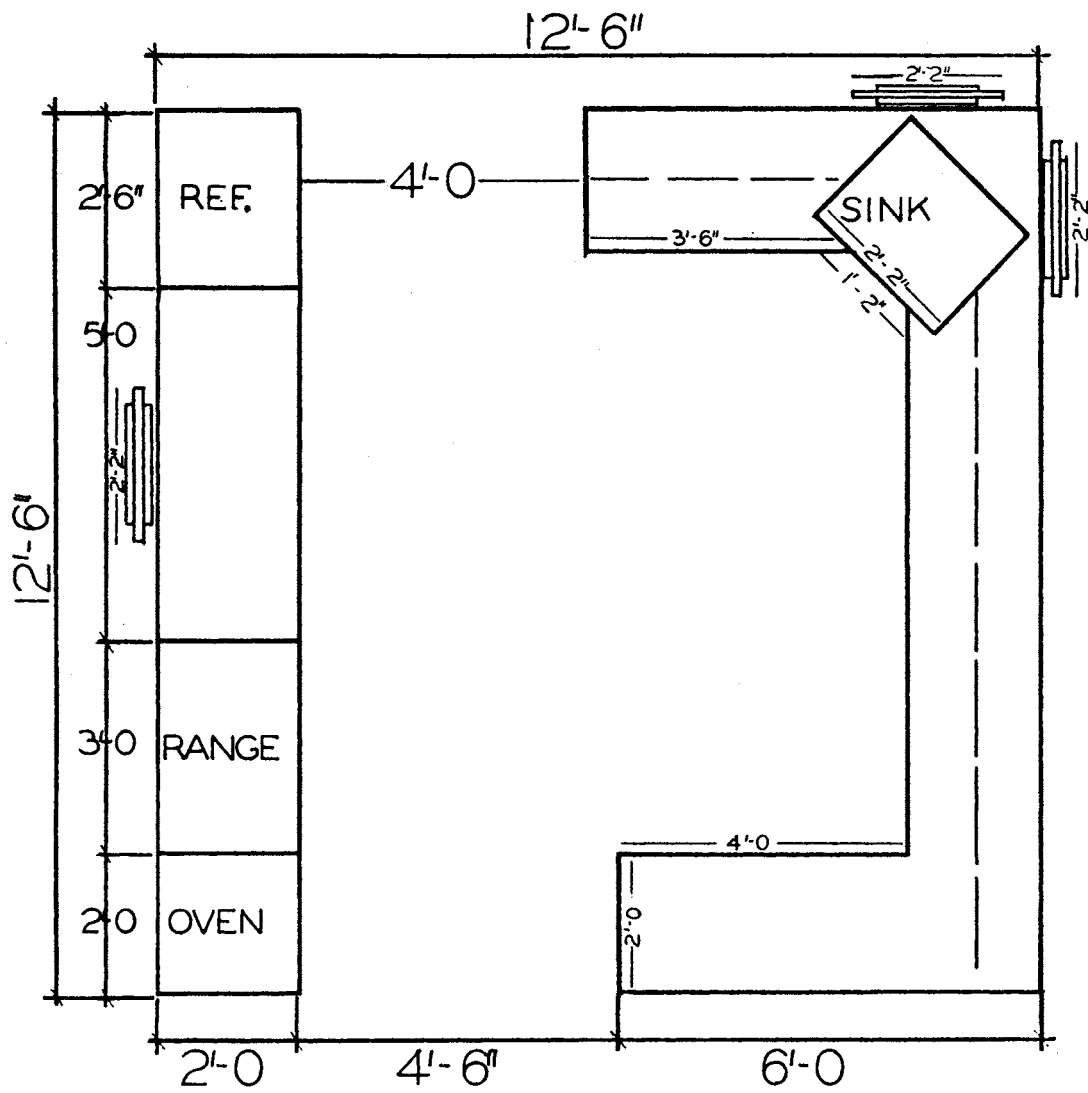


COOKIE SHEET
PIE PAN
MUFFIN TIN

SCALE 1"=1'-0"

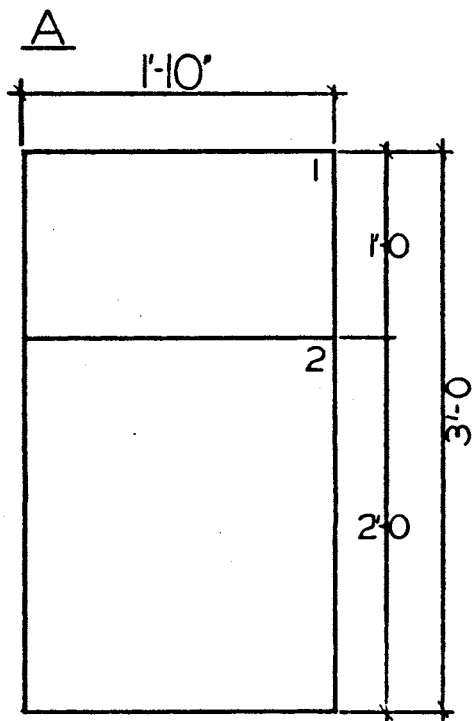
APPENDIX C

MRS. Z'S KITCHEN AND STORAGE CABINETS

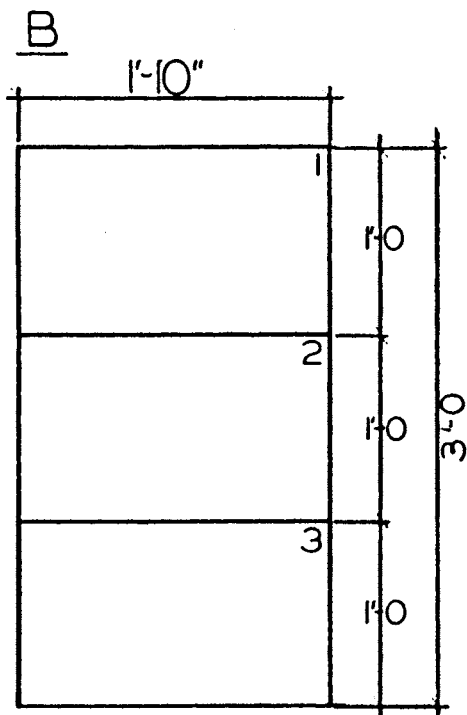


SCALE 3/8"=1'-0"

BASE CABINETS ON EAST WALL



1 & 2
 CANNED GOODS &
 OTHER STAPLES WHICH
 DO NOT NEED REFRIGERATION
 SUCH AS;
 BARBECUE SAUCE, PEANUT
 BUTTER & SYRUP



1
 FLATWARE

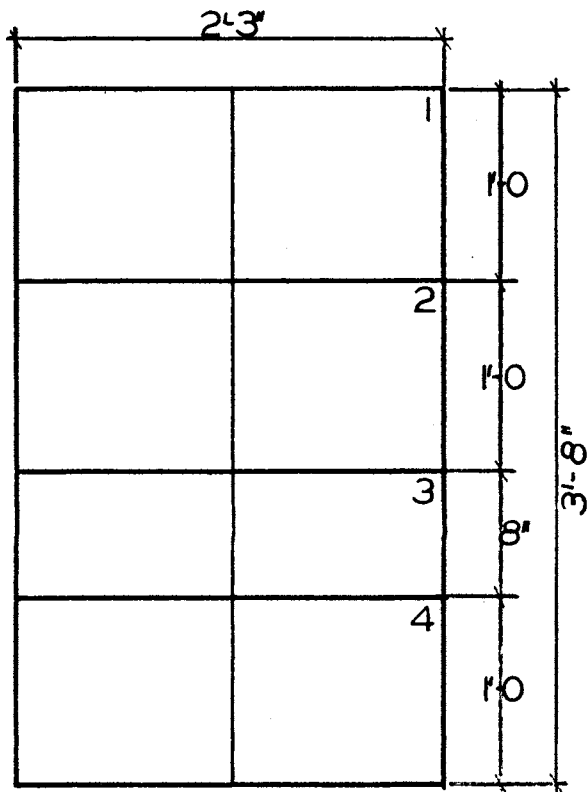
2
 EVERYDAY DINNERWARE

3
 EVERYDAY DINNERWARE

SCALE 1"=1'-0"

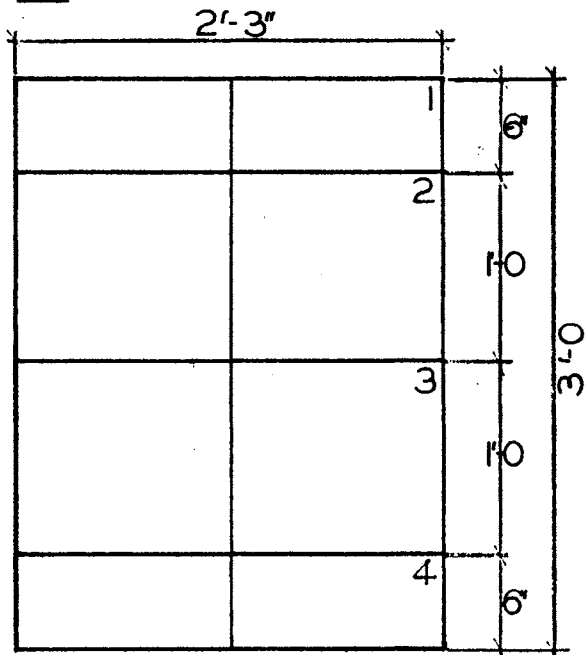
WALL & BASE CABINETS TO RIGHT OF SINK

C - WALL CABINET



- 1
HOLIDAY DECORATIONS -
SELDOM USED
- 2-3-4
CHINA & CRYSTAL -
SELDOM USED

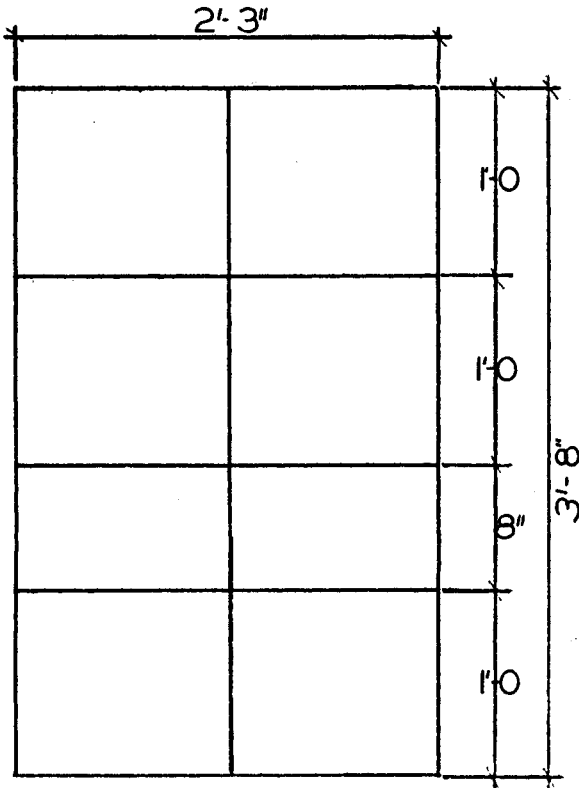
D - BASE CABINET



- 1
STEAK KNIVES, SPATULA,
RUBBER SCRAPER
- 2
BAKING DISHES
- 3
COFFEE POT, BAKING
UTENSILS
- 4
CAKE PANS, PIE TINS

SCALE 1" = 1'-0"

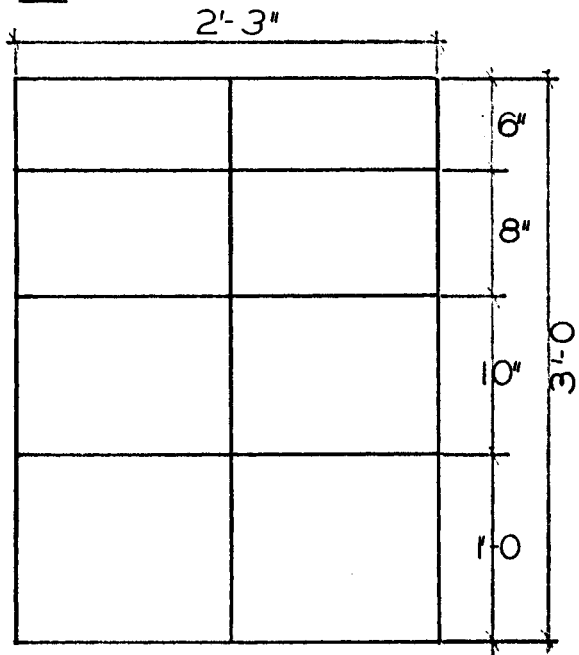
E - WALL CABINET



1
HOLIDAY DECORATIONS -
SELDOM USED

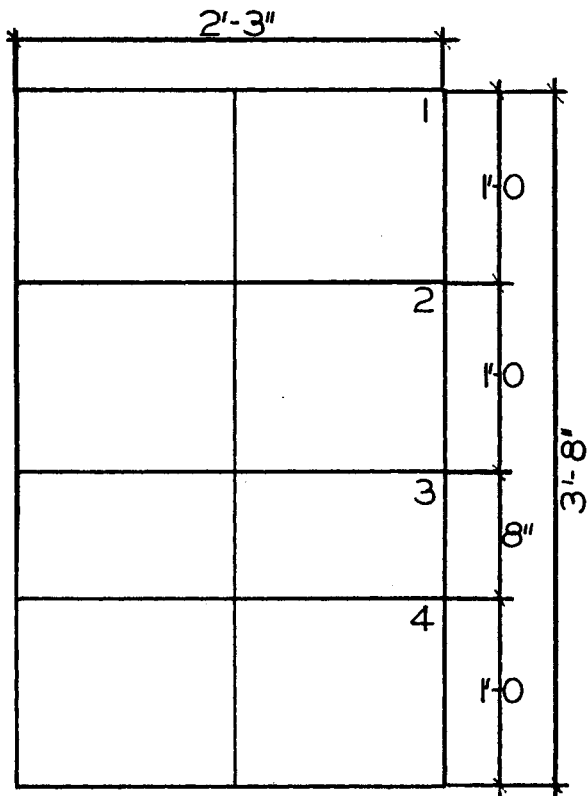
2-3-4
POTTERY & GLASSWARE -
SELDOM USED

F BASE CABINET



1-2-3-4
EQUIPMENT FOR OUTDOOR
COOKING SUCH AS,
TURNER, FORK, TRAYS

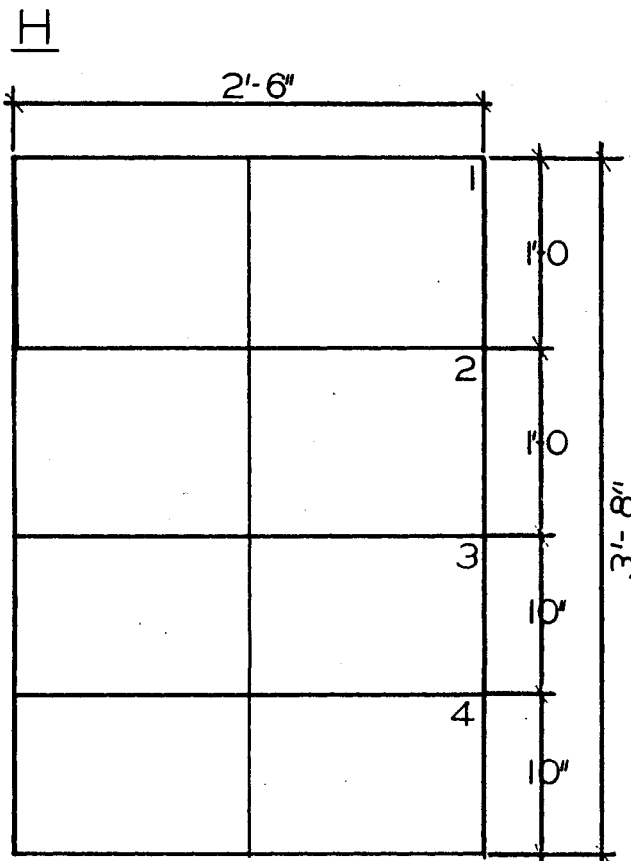
SCALE 1"=1'-0"

G - WALL CABINET

1-2-3-4
POTTERY & OTHER
DINNERWARE

SCALE 1"=1'-0"

WALL CABINET, LEFT OF SINK

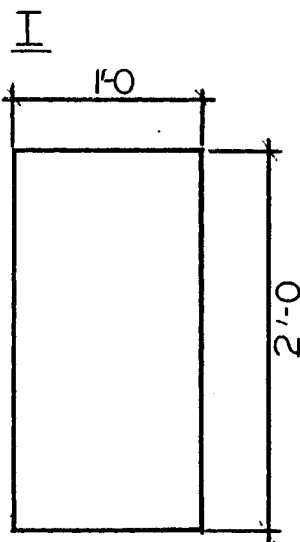


1
CANNING QUARTS &
JAR RIMS

2
CANNISTERS WHICH
CONTAIN FLOUR &
SUGAR

3
SIFTER

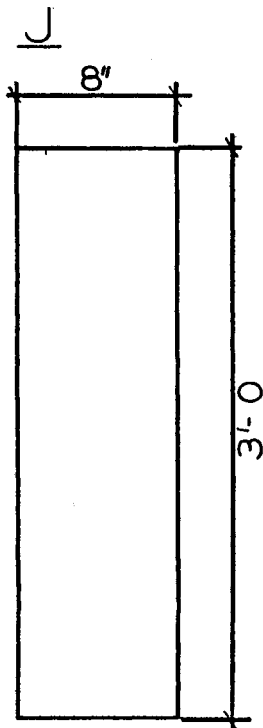
4-3
MIXES FOR SUCH
FOODS AS CAKES,
PANCAKES &
CASSEROLES



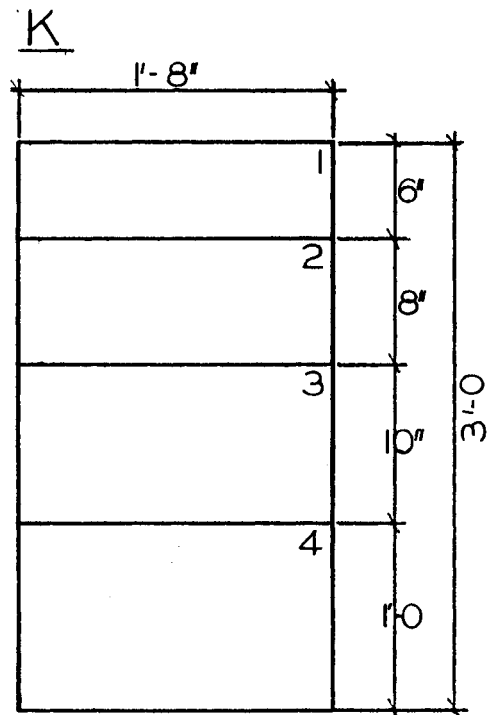
UNDER SINK

DISH DRAINER
SMALL WASTE BASKET
DISH WASHING SUPPLIES

BASE CABINET, LEFT OF SINK



DISH TOWELS



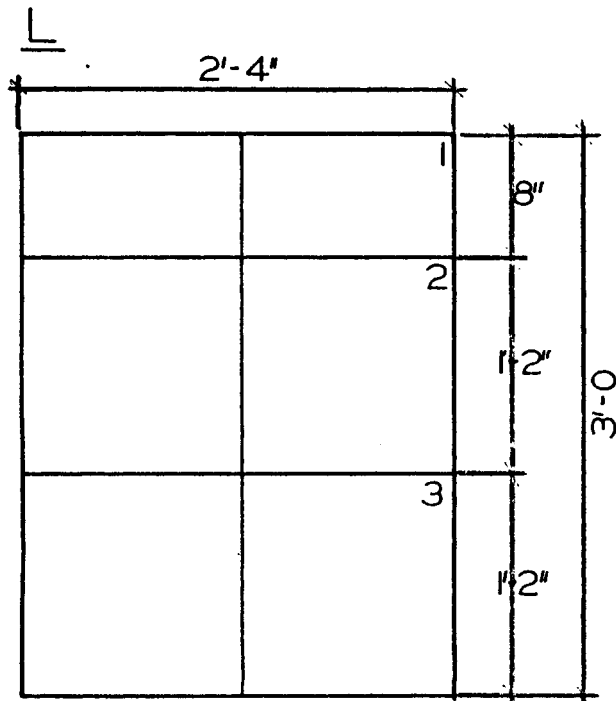
1
CLEAN DISH TOWELS

2
MIXING BOWLS

3-4
BAKING DISHES

SCALE 1"=1'-0"

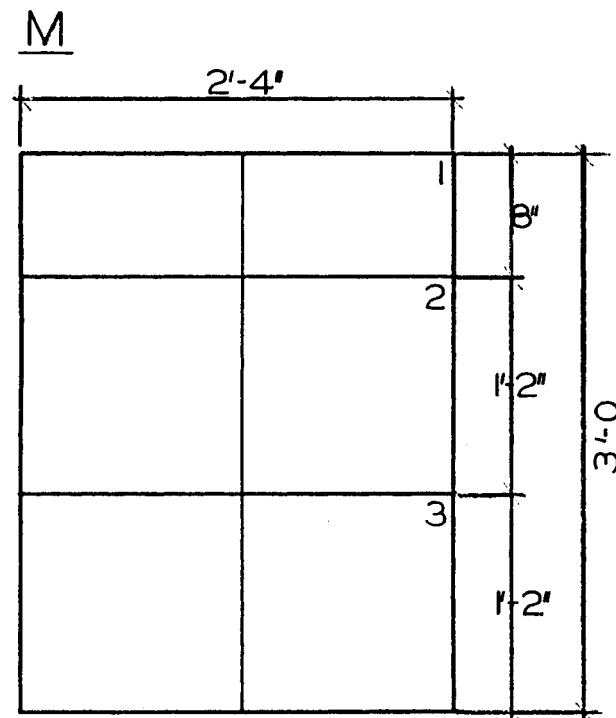
CABINETS BETWEEN RANGE-TOP & REFRIGERATOR



1
SMALL CONTAINERS
OF SUGAR & CORN-
MEAL, SPOONS, KNIVES,
SEASONINGS, VINEGAR

2
CAKE PANS, PIE PLATES
LOAF PANS

3
BLENDER, ROLLING
PIN, COOKING OIL

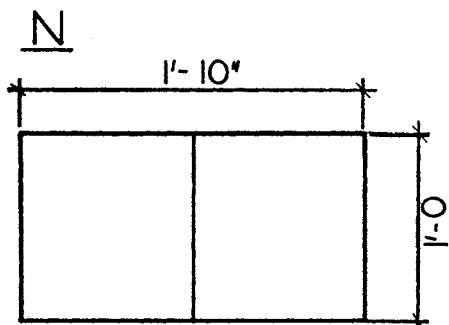


1
PORTABLE MIXER,
CORD FOR ELECTRIC
SKILLET, POT HOLDERS

2-3
SAUCEPANS
BAKING SHEET

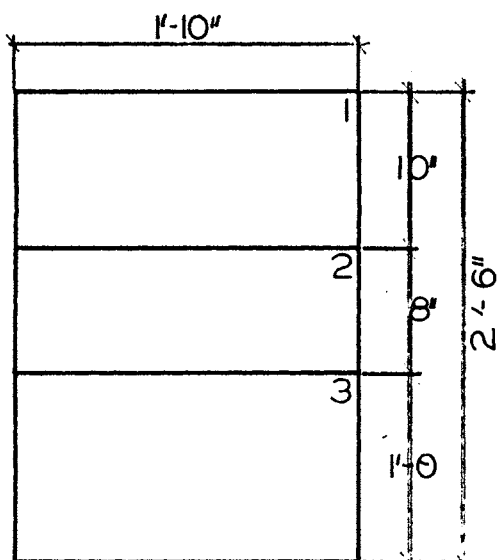
SCALE 1" = 1'-0"

ABOVE OVEN



WALL HANGINGS,
BOOKS, MISCELLANEOUS

O BELOW OVEN



1
BREAD, CEREAL, CRACKERS

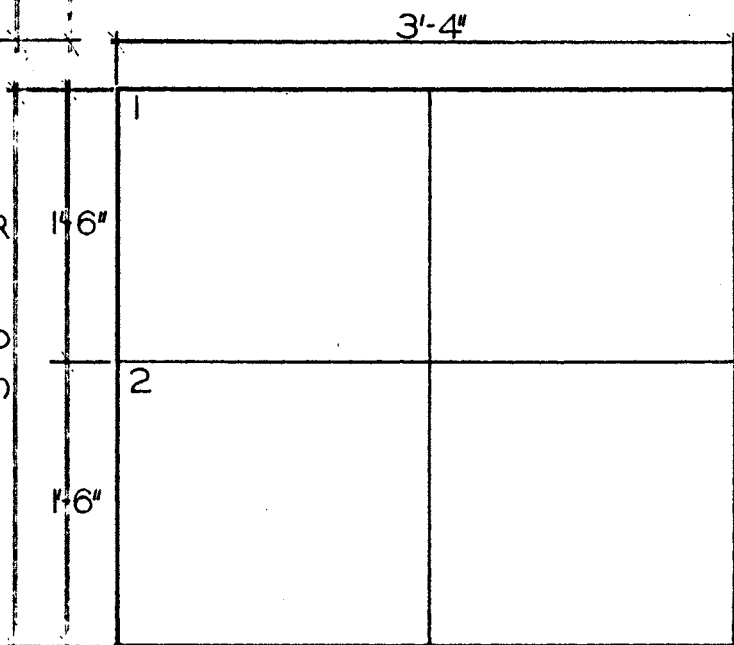
2
NAPKINS, ALUMINUM FOIL,
HANDY-WRAP, BAGGIES,
WAXPAPER, TOOTH PICKS

3
OIL PAINTINGS

P-BELOW
RANGE TOP

1
PULL-OUT SHELF FOR
ELECTRIC SKILLET

2
PRESSURE COOKER
CAST IRON SKILLET
ROASTER, TEA
KETTLE



SCALE 1"=1'-0"

VITA

Judy Kay Coffey

Candidate for the Degree of

Master of Science

Thesis: DEVELOPMENT OF INDEPENDENT LEARNING PACKETS ON WORK SIMPLIFICATION IN KITCHENS FOR WHEELCHAIR HOMEMAKERS

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Professional Organizations: Oklahoma Home Economics Association, American Home Economics Association.