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Convenient Kitchens
Michigan State University Extension Service
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Convenient KITCHENS



MICHIGAN STATE COLLEGE
EXTENSION DIVISION
EAST LANSING



CONTENTS

	PAGE
Factors Determining Convenience	5
Location of Kitchen	5
Size and Shape	5
Openings	7
Water Supply	8
Equipment	9
Wiring	10
Kitchen Centers	12
Food Preparation Center	12
Cooking and Serving Center	13
Clearing up and Dishwashing Center	13
Sink	13
Business or Planning Center	15
Dining Center	16
Laundry and Other Centers	17
Arrangement of Centers	17
Storage Cupboards	31



CONVENIENT KITCHENS

JULIA POND AND HELEN NOYES

Sometime during her life every homemaker may be confronted with the remodeling or improving of an old kitchen or the planning of a new one. If satisfaction is to result, careful planning is essential. The purpose of this bulletin is to give concisely and clearly the fundamentals so necessary to reach the goal of a convenient kitchen.

Because the kitchen plays so prominent a part in family life, the planning of it should be given every consideration possible. In the majority of cases homemaking is still a full-time job. Statistics prove that as much as 45 per cent of the homemaker's working day is spent in the kitchen. This fact alone justifies every reasonable expenditure of money used in the improvement of this room. A well-planned kitchen means less time required for work done in that part of the house and more time possible for the other homemaking duties as well as for leisure time activities and family companionship. It may also promote a more wholesome optimistic mental attitude in the homemaker.

Factors that determine the convenience of a kitchen are:

1. Location of kitchen in relation to other rooms of the house.
2. Number of different activities carried on in the kitchen.
3. Size and shape of the kitchen.
4. Number, size and location of doors and windows in relation to light, ventilation and arrangement of equipment.
5. Source and type of water supply.
6. Amount and type of equipment.
7. Arrangement and grouping of both large and small equipment.
8. Amount and location of work and storage space.
9. Height of large equipment.
10. Adequacy of electrical wiring.

LOCATION OF KITCHEN

The kitchen should be conveniently located in relation to a back or outside entrance, to cellar or basement and to dining space or room. It should also not be too far from the front entrance and main floor bathroom.

SIZE AND SHAPE

The small square and narrow rectangular kitchens are preferable from the standpoint of arrangement of equipment. The kitchen may vary in

Recognition is given C. H. Jefferson of Michigan State College Agricultural Engineering Department for aid in preparation of this bulletin.

size from approximately 108 to 210 square feet, depending upon the number of activities carried on in it and the size of the family. If the kitchen is to be used only for meal preparation and cleaning up after meals, a room 8 or 9 feet wide and 12 to 15 feet in length will be large enough. When other centers such as the dining and laundry are in the kitchen the length and often the width of room must be increased. A kitchen narrower than $7\frac{1}{2}$ or 8 feet will not permit equipment being placed on both sides. If equipment is not so placed wasted space and unnecessary steps result.



Fig. 1. The two windows provide adequate light and cross-ventilation. The electric fan in the wall above the refrigerator quickly rids the kitchen of undesirable odors. (Another view of the kitchen in Fig. 21.)

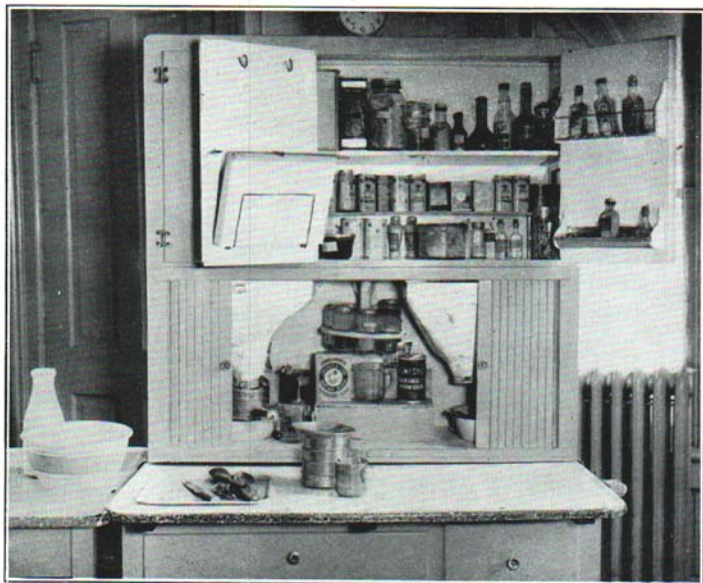


Fig. 2. The staple supplies and equipment necessary in a mixing center are stored in this kitchen cabinet.

OPENINGS

The number, size, shape and location of the windows in a kitchen often determine the efficiency. Windows are necessary for adequate light and ventilation as is illustrated in Fig. 1. They should be placed at least 45 inches from the floor and in a position which will not interfere with the placing of wall cupboards. Although windows on opposite walls are desirable whenever possible, many of the more modern kitchens have corner windows (Fig. 22). For the average sized kitchen two windows are sufficient. If the light is not too strong the windows may be placed directly over the sink or work-table. The more unbroken wall space one has in a kitchen, the greater are the possibilities for a convenient arrangement.

The kitchen should not be a hallway and the doors should be located with that point in mind. For that reason and also because of the placing of large equipment there should be not more than two or three doors. Those should be grouped closely together, preferably in one corner or on one side of the room. (See Figs. 25, 26, 27, 29 and 30.)

WATER SUPPLY

The source of the water supply should be in the kitchen if possible. The most convenient source is at a kitchen sink which is conveniently grouped with the other large pieces of equipment and not in a far corner of the kitchen. A supply of both hot and cold water will save many steps each day. The sink should be equipped with a drain adequate for disposing of all waste water from the kitchen. In homes where it is necessary for the family members to wash in the kitchen it is desirable to have a separate sink or lavatory located away from the kitchen work centers.



Fig. 3. This cupboard is placed next to the refrigerator and a few steps from the sink. The doors are hinged so that the entire cupboard opens wide and everything is accessible. Here are stored the staple foods and equipment necessary when such foods as a cake or biscuits are to be mixed. Notice the pockets on the door (graduated in size) where spices are stored and the vertical shelves for storing the pie and cake pans.



Fig. 4. A mixing cupboard. Notice the bin which wastes no space because it is flat and box-like at the bottom. It does not need to be supported when open and will not bang shut. The large rubber-tired, ball bearing castors make it easily moved. The space at the end of the cupboard has been left for a refrigerator.

EQUIPMENT

There should be ample equipment of the size and type suited to each particular home. The essential pieces of large equipment are a stove, sink, storage cupboards, refrigerator, work space, and stool. These articles and the small equipment should meet the needs of the family, be within the budget in both initial and operating cost, be easy to operate and to keep in repair.

One very important characteristic of the stove, sink and work space is that all be the proper height for the person using them the most. The best test for this height is that it will permit the person to work without stooping or stretching. Try out several heights before deciding which one is best and then have equipment adjusted to that height. Work space varies in height from 32 to 38½ inches from the floor, depending upon height of worker and type of work to be done. Recent research indicates that for the woman of average height these measurements are preferable: 32½ inches from bottom of sink bowl to floor of room, 38½ inches from drain board to floor, 32 inches for the mixing table, and 32½ inches for the ironing board.* When it is desirable to have all equipment the same height, the height of the sink should be

*Wilson, Maud—"The Willamette Valley Farm Kitchen"—Oregon State College Station Bulletin 356.

the determining one. Castors, furniture rests, blocks or platforms of wood can all be used to increase the height of such pieces as the stove, portable tables, cabinet, and stool.

WIRING

Kitchens in homes equipped with electricity should have one ceiling light and in some cases supplementary lights over work areas. The ceiling fixture should be fitted with a diffusing globe and a 100- or 150-watt bulb. The lights over the work areas should not be at eye level. It is desirable to have diffusing globes or washable shades over the bulbs. Tubular lights may be used also to supply light over work areas.

Outlets should be provided for the refrigerator and iron. There also should be an outlet at the mixing cupboard and one in the dining area. Stoves require special wiring.



Photo, Courtesy, Farmers Wife Magazine.

Fig. 5. Storage center. Perishable foods are kept in the refrigerator and supplies and equipment in the cupboards. The knife rack is placed on one end of the cupboard just to the right of sink. The space above the refrigerator provides storage for seldom used articles.



Fig. 6. Notice the difference in heights of table space of mixing cupboard and of sink and dish cupboard. The sink and dish cupboard are the same height while the mixing cupboard is a few inches lower.

KITCHEN CENTERS

The necessary work centers in a well-planned kitchen are food preparation, cooking and serving, and clearing up and dishwashing. The business center is rapidly becoming the fourth of the essential centers of the convenient kitchen. A dining or eating area is frequently found in the larger kitchens. When each center in itself is properly equipped and the different centers are grouped in an orderly manner the kitchen will be convenient.

FOOD PREPARATION CENTER

Food preparation work may be either the preparing of such foods as vegetables and fruits or the making of cakes, cookies, pies, puddings, etc. The efficient food preparation center is equipped with a refrigerator or substitute and a mixing cupboard. The sink with a drain and hot and cold water should be adjacent to or within a few steps of the mixing cupboard.

An efficient mixing cupboard provides storage for staple foods and small equipment used in the making of cakes, pies, etc., and work table space. In the cupboard above the work table can be stored spices, extracts, cornstarch, soda, salt, baking powder, dried fruits, measuring cups and spoons, mixing bowls and recipes. Preparation cutlery, pie pans, cake and bread pans, cookie sheets, strainers, sifters, graters, food

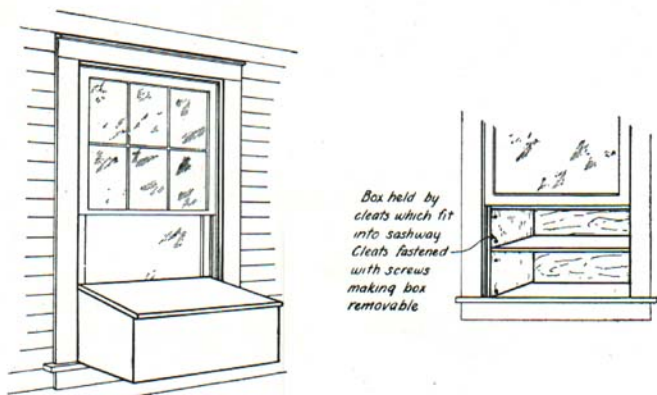


Fig. 7. A box for food attached outside a window sill saves many steps during the cool months.

chopper, flour, sugar, and mixing board can be kept in the lower or floor cupboard. (See Figs. 2, 3, and 4.)

Near the sink, whether it adjoins the mixing cupboard or is a few steps from it, should be space for vegetable brushes, paring knives, and kettles in which vegetables and fruits are to be cooked.

COOKING AND SERVING CENTER

The large pieces of equipment necessary in a cooking and serving center are a stove, cupboard for storing utensils and supplies used at the stove, and table space on which the serving dishes may be placed.

The storage space near the stove should provide space for tea, coffee, salt, pepper, small quantities of flour and sugar, coffee and tea pots, large spoons and forks, potato masher, frying pans, saucepans, pot covers, hot pads, serving platters, vegetable dishes and any other small equipment used near the stove. It is more convenient to hang the small equipment on hooks rather than to store it in stacks on shelves. The spoons, forks, potato masher, and similar pieces may hang on the inside of the cupboard door. Vertical partitions should be provided for storing the pot covers and vegetable platters. The serving space may be the table top of the floor cabinet near the stove or if there is no cabinet near the stove, a service wagon or small portable table may provide this space. On some electric, gas, and kerosene ranges the flat top of the oven provides sufficient serving space.

CLEARING UP AND DISHWASHING CENTER

Because the sink is the center of the dishwashing area there should be space on one side to stack soiled dishes and on the other side space to drain and a cupboard in which to store the clean dishes. For a right-handed person the dishwashing process will proceed from right to left thus locating the draining area and the dish cupboard, for dishes frequently used, at the left of the sink. (Fig. 14.) A desirable minimum length of counter at left of sink is 32 inches and 36 inches at right of sink.* For a left-handed person the process should proceed from left to right (Fig. 6), and the arrangement of sink and dish cupboard be reversed. Do not overlook this point when selecting and installing a sink and dish cupboards.

SINK

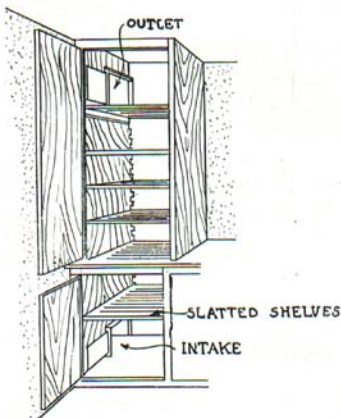
The sink equipped with hot and cold water and a drain saves more steps in the kitchen than any other piece of equipment.

Sinks can be several types: There is the double sink which is composed of two small sinks each having a drain but one center tap furnishing water for both. Dishes are washed in one section and drained in the

*See footnote 1, page 9.

other. The sink may be of the single bowl type with or without drain boards attached. There may be one or two drain boards. For a right-handed person the one drain board should be at the left of the sink. For the typical left-handed person the one drain board should be at the right. The sink may be of the apron type which fits in between the cupboards or the type without the apron which is set into the cupboard top. The sink may be the cabinet type with cupboard space below, or the space below the sink may be left open (Figs. 6, 12, 21, and 22).

When the space below the sink is **inclosed** and **ventilated**, the soap, cleaning powders, dish pan, and dish drainer can be stored there. Some prefer to store soaps, clean-



VENTILATED CUPBOARD OR COOLER
Courtesy, U.S.D.A.

Fig. 8. A storage space for certain perishable foods



Fig. 9. A convenient food preparation and dishwashing center combination. To decrease building costs the old kitchen cabinet was placed at the right of the sink and is used as the mixing cupboard.



Photo, Courtesy, Farmers Wife Magazine.

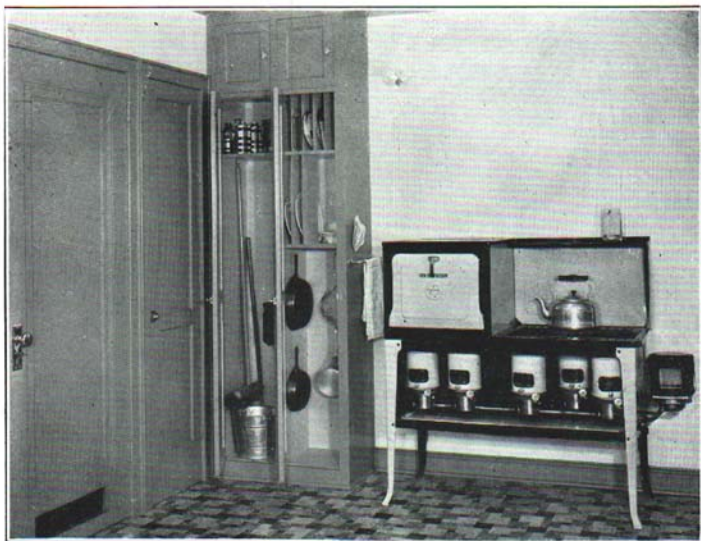
Fig. 10. A kitchen sink which is located beneath two windows and between the kitchen cupboards. Equipment and supplies used at the sink are within easy reach—the knives are on the rack at the right, soap and cleaning powder on narrow shelves at the end of the cupboard on the left, dish pan and dish drainer on shelves below the sink, garbage can and waste paper basket under the sink, the vegetable brush, and dish mop on hooks at lower left and right of sink.

ing powders, and vegetable brushes in a cupboard directly above the sink or in a cupboard above and to one side of sink. Shelves 6 inches deep will be adequate for such articles.

In some instances two or three days' supply of potatoes or other vegetables can also be kept in the space under or near the sink. A garbage can should be kept under or near the sink. There should be near the sink a drawer for clean tea and kitchen hand towels and dish cloths, and a place to hang those in use. The knives, vegetable brushes, dish drainer, cutting board, and saucepans in which vegetables are cooked should also be kept in the cupboard near the sink.

BUSINESS OR PLANNING CENTER

If at all possible, some provision should be made for a business or planning center in every kitchen. It may consist of a specially built



Photo, Courtesy, Farmers Wife Magazine.

Fig. 11. A cooking center. The one cupboard to the left of the range provides space for storing utensils and supplies used at the range. Notice that the frying pans and sauce pans hang while the kettle covers, vegetable platters and dishes are stored in the "pigeon holes" or vertical shelves. The cleaning supplies and equipment used in the kitchen are stored in the corner cupboard.

desk and chair. Hanging book shelves, the portable table and one of the kitchen chairs make a usable business center which is not expensive (Figs. 17 and 18). Often a rigidly hinged leaf, which may enclose shelves when in place and a kitchen chair make a satisfactory arrangement. This center need not be costly or require much space but one is desirable in every kitchen. It provides a space to store receipted bills and the home account books, as well as a convenient space in which to enter accounts, and make out the grocery list or the menus for the week.

DINING CENTER

When the dining area is located in the kitchen it should be away from the three main work centers and not a part of them. Preferably it should include table and chairs which can be moved rather than the stationary type. A window near this area always makes it more cheerful. A very attractive dining center is shown in Fig. 19.

LAUNDRY AND OTHER CENTERS

When it is necessary to do the laundry work in the kitchen the equipment for it should be stored away from main centers of the kitchen rather than be crowded between the range and storage cupboard.

It is advisable whenever possible to have a service hall or room (Figs. 29, 32 and 33) in which to do the laundry, store every day wraps and provide a place for the men to wash.

The cleaning equipment closet may also be located in this room if there is not space in one corner of the kitchen. It too should never be grouped between the pieces of large equipment (Figs. 11 and 19).

ARRANGEMENT OF CENTERS

These general rules should be observed in grouping equipment, no matter what the type of arrangement: 1. Group large equipment in appropriate centers.

2. Group the three essential centers in the order in which the work proceeds. Avoid as little back-tracking as possible and thus save steps. Work usually proceeds best from right to left, but a left to right grouping may be just as satisfactory.

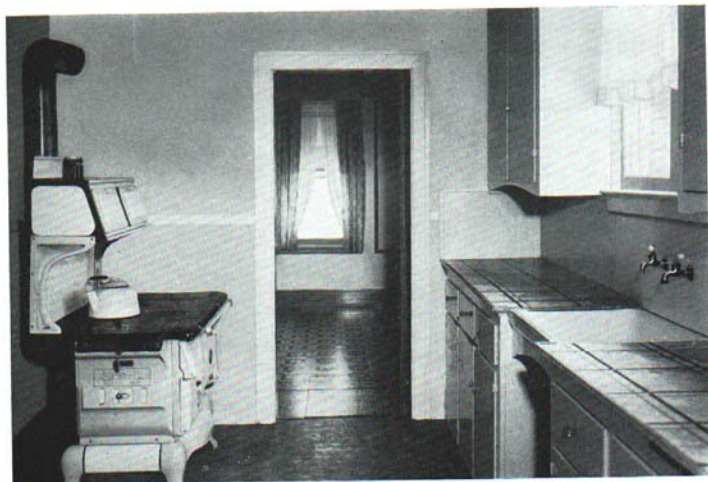


Fig. 12. The kitchen range, dish cupboard and sink are all located near the dining room door.

3. Store small equipment near the work surface upon which it is to be used first.

If the foregoing rules are followed the result will be a U or corner arrangement. Usually the large equipment will be grouped in this manner; refrigerator, mixing cupboard and work table space, sink, dish cupboard, range, cupboard for utensils and supplies used at range and serving space. Quite frequently the refrigerator is near the outside door and if possible the range is near the dining room door or dining center (Figs. 12, 13, 20, 28, 29, 32 and 33). In some kitchens it may be desirable to have the dish cupboard near the dining room door.

Studies made in Vermont give these very convincing results for the person who is in doubt about the importance of a compact orderly grouping of equipment. In an improved kitchen 131 steps and 2 hours and 6 minutes were sufficient to accomplish work which required 1,516 steps and 3 hours 46 minutes in the unimproved kitchen. These reductions effected a release of 45 per cent of the homemaker's time and the elimination of 91 per cent of the steps. In one kitchen 152 steps were



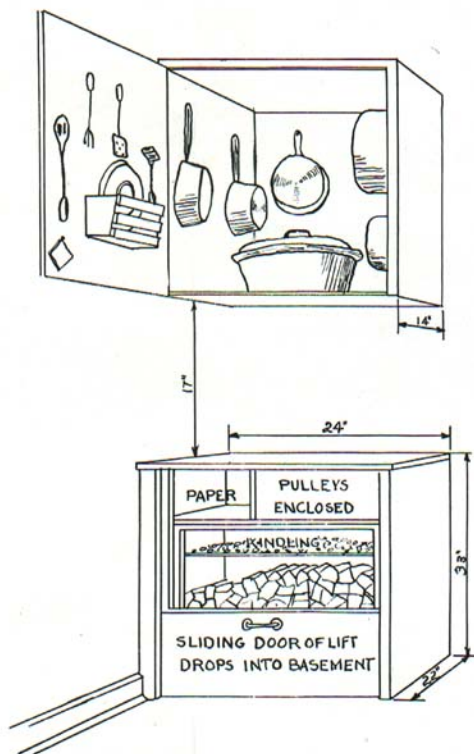
Fig. 13. This kitchen range is located in one end of the kitchen just a step from the mixing cupboard. At the left of the range is a cupboard for utensils used at the range. The door at the right opens into the service room. The cupboards, sink, and refrigerator are located on the walls opposite the dining table and stove.



Fig. 14. A clearing away and dishwashing center. The soiled dishes are stacked at the right, the dishes washed in the sink, rinsed in the sink, drained in the dish drainer at the left and placed in the cupboard just above the dish drainer. This arrangement saves time and energy because the process proceeds in a logical orderly manner. For the left-handed person the arrangement should be reversed.

eliminated and 17 minutes were saved from the preparation, serving, and cleaning up of one meal due entirely to the compact arrangement of large equipment. Time spent in making a one-egg cake was reduced from 12 minutes to $5\frac{1}{4}$, while 80 per cent of the steps were eliminated. In the process of clearing away after dinner and washing the dishes the number of steps was decreased from 559 to 195.*

*Muse, Marianne—Kitchen Equipment and Arrangement. Vermont Agricultural Experiment Station.



Courtesy, United States Department Agriculture.

Fig. 15. A storage cupboard for utensils and supplies used at the stove, a serving area and fuel box. Cover may lift up instead of open from front.

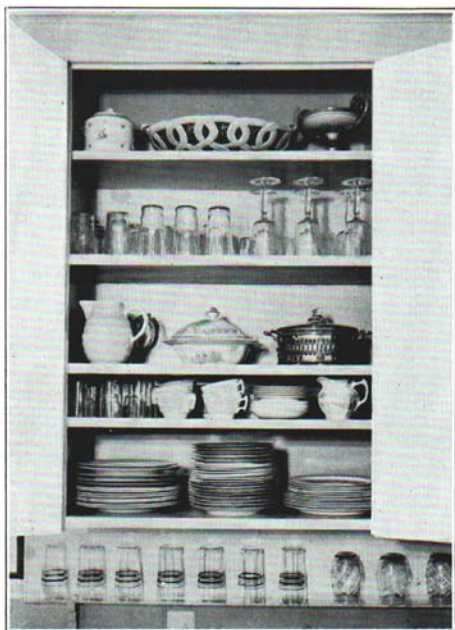


Fig. 16. A dish cupboard in which the shelves are spaced to fit the articles to be stored.



Fig. 17. A combination cooking, serving and planning center. The open shelves beside the stove can be used either for serving space or for a writing table when entering accounts or planning menus for the week.

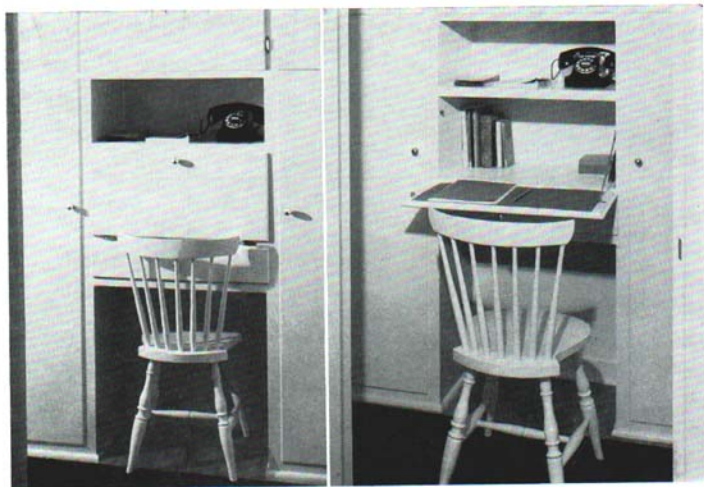


Fig. 18. An attractive and convenient business or planning center.

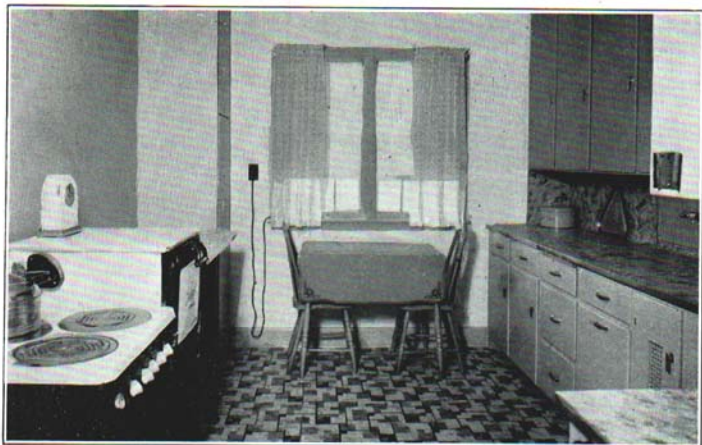


Fig. 19. An attractive and cheerful dining center in one end of the kitchen. Notice the outlet for the toaster or waffle iron, the cleaning closet in the corner, and the drop-leaf serving space beside the stove.



Fig. 20. A broken U-arrangement. The refrigerator and stove are near the mixing cupboard and sink. The dish cupboard is at the left of the sink. This is another view of the kitchen in Fig. 19.



Fig. 21. A compact convenient kitchen arrangement. Notice these features: light in ceiling above sink, wall outlets for small electrical equipment, cupboards on wall space over the range, glazed tile working surface, double sink, ventilated cupboard below sink, and toe space at bottom of cupboard.

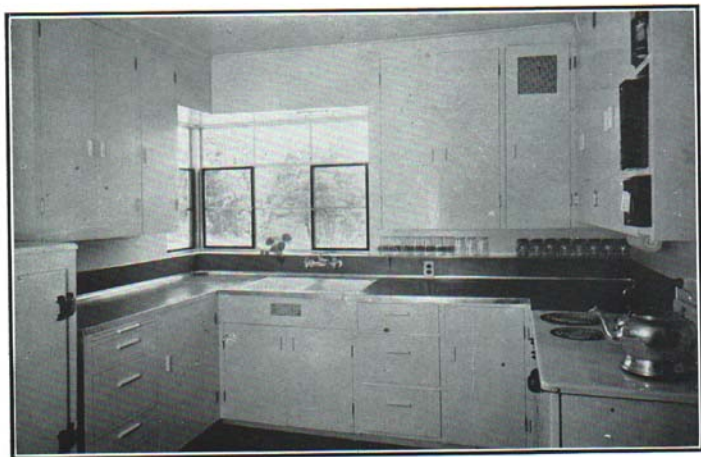
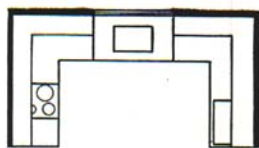
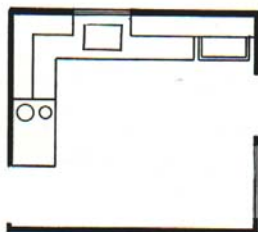


Fig. 22. An example of a U-shaped kitchen arrangement in which adequate storage and working space is conveniently and compactly grouped.



U Arrangement of Kitchen Equipment



Corner Arrangement of Kitchen Equipment



*Broken U Arrangement of Kitchen Equipment
The Centers Are Separate*



Broken Corner Arrangement of Kitchen Equipment

Fig. 23. Basic types of kitchen arrangement.

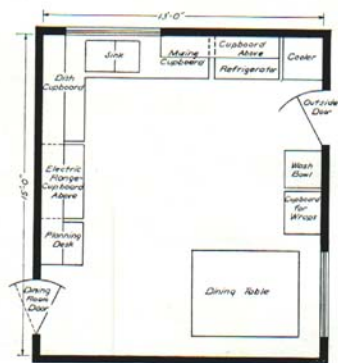


Fig. 24. Corner arrangement. Space for dining area.

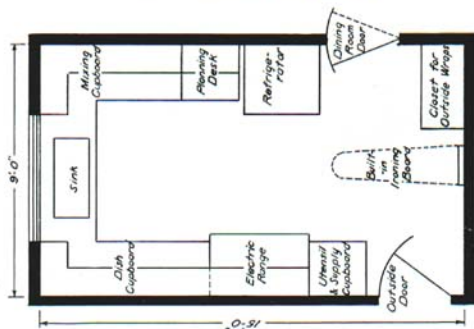


Fig. 27. U-arrangement.

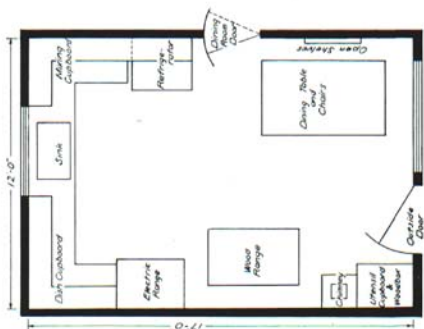


Fig. 26. U-arrangement. Space for dining area and two ranges.

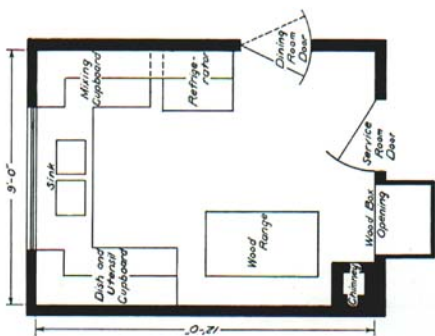


Fig. 25. U-arrangement. Small and compact.

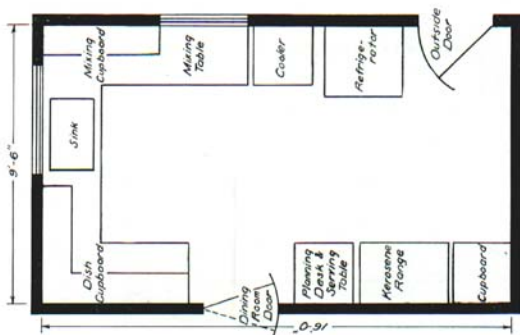


Fig. 28. Broken U-arrangement.



Fig. 30. A broken U-arrangement using portable equipment.



Fig. 29. Broken U-arrangement. Each center separate.

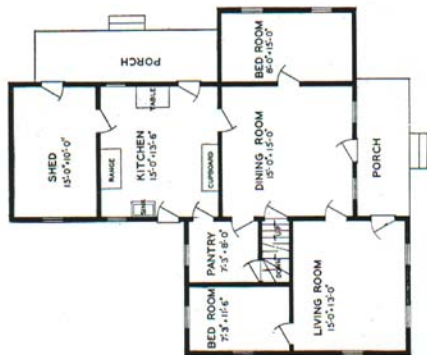


Fig. 31. Original house plan. Note the poorly arranged kitchen.



Fig. 32. The remodeled house plan of Fig. 31. Note the convenient kitchen arrangement.



Fig. 33. Another remodeled house plan of Fig. 31. Note the convenient kitchen arrangement.

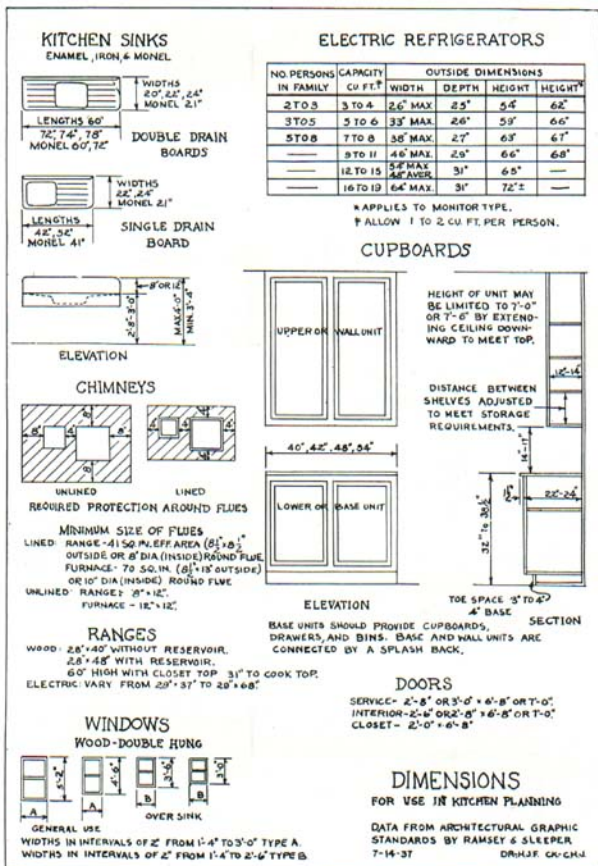


Fig. 34. Standard measurements.

STORAGE CUPBOARDS

1. Build cupboard from floor to ceiling. The extreme top space can always be used for storing seldom-used equipment and supplies. If desirable, ceiling may be constructed to meet the top of the cupboard to avoid a dust-catcher.
2. Floors of lower cupboards should be 2 to 4 inches above floor of room.
3. Allow for "toe" room by extending top beyond base 3 inches, or make top flush with base and push in board at base of cupboard 3 inches.
4. Lower cabinet should extend out from wall 22-25 inches.
5. Upper cabinet should extend out from wall 12-13 inches (outside measurements) or be as narrow as possible for storing articles in cupboard.
6. Shelves just wide enough to hold glasses, cups and spices may be built between the wider shelves.
7. Allow 14-17 inches between table top and lower shelf of upper cabinet.
8. Have equipment correct height for worker—32-38½ inches from floor. Heights suited to the average woman are:

Mixing table	32 inches
Floor of sink bowl	32½ inches
Sink drain boards	38½ inches
9. Doors should not be too wide. Doors on upper cabinet should not swing out beyond edge of the work table. Two narrow doors are better than one wide one. A 10-12-inch door is best for doors of upper cupboard. Doors for lower cupboard may be as wide as 15-18 inches.
10. Hinge doors on the side that is the most convenient for the worker to open and close them.
11. Shelves that cannot be conveniently reached when one is standing on floor may be enclosed with separate doors.
12. Allow space between shelves and for depth of drawers so as little stacking as possible will be necessary. Drawers may vary in depth from 3 to 10 inches. The space between shelves may vary from 4 to 15 inches. Allow 1 inch of clearance between article stored and shelf above.
13. Movable trays are more convenient than shelves in compartments below work table space.

14. Vertical shelves or "pigeon holes" are a convenient and satisfactory way of storing pie, cake, and muffin pans, trays and lids.
15. Provide knife rack for kitchen knives. This rack may hang on the wall, inside of a cupboard door or be fitted into a drawer.
16. Storage space for bread and cake should be metal lined and ventilated. A drawer may be built for this purpose.
17. Drawers may be used as bins. For food stored in 25-pound lots, large drawers with movable metal insets are preferable to small drawers.
18. If bins are used they should be of the type not hinged at the bottom but ones that can roll out into the room and not need to be supported by the worker.
19. Whenever possible, hang kitchen utensils rather than stack them on shelves.
20. If small articles are to be hung on the inside of the cupboard door equipped with shelves, the shelves should be 3-4 inches narrower than the cupboard itself.
21. More efficient use can be made of the hanging space on the inside of a door or a cupboard if hooks can be placed wherever desired rather than on one certain strip or section.