

HOME ECONOMICS GUIDE



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Developing a microwave oven center in the kitchen

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Quick Facts

Locating a microwave oven near accessible counter and storage space is essential for user convenience.

Microwave ovens may be placed on the counter of an existing base cabinet, on an appliance cart or built into a wall or cabinet; each location has advantages and disadvantages.

In an ideal situation, the microwave oven height should prevent strain and fatigue for the user.

To determine the needed amount of counterspace adjacent to a microwave oven, the numbers and sizes of utensils required for meal preparation and the service tasks from that appliance should be assessed.

As with other major work centers in a kitchen, the microwave oven center should provide useful, accessible, convenient storage space.

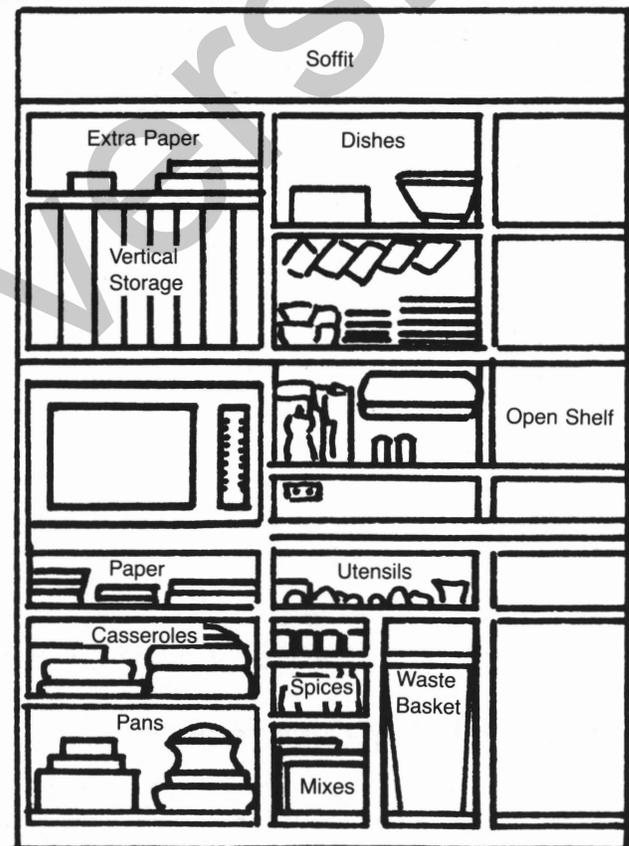
Evaluating household use of a microwave oven is important before choosing the location of the appliance within the kitchen.

The addition of a microwave oven to an existing kitchen is often a challenge. Locating the appliance near accessible counter and storage space is essential for user convenience.

The combination of a major appliance with counterspace and storage facilities related to uses of that appliance is referred to as a *work center*.

A center or organized workplace allows tasks to be performed with less expenditure of time and energy. For example, with a microwave oven, counterspace is needed for preparing, attending and serving foods. Storage space accessible while using the microwave can save steps and motions for the user.

Organizing a center is important for any model of microwave oven—portable, built-in or free-standing



combination range. Counterspace is most convenient if located on the latch side of the microwave (if side hinged) and spacious enough for most tasks related to that appliance. Preparing and attending foods in a covered utensil require counterspace for the utensil plus the cover.

If food preparation requires the addition of ingredients during cooking, counterspace for these ingredients is needed. Storage of utensils, dishes and foods used first at the microwave oven area should be within easy reach of the user. Adequate facilities, conveniently arranged, are

beneficial to the user in promoting ease and efficiency in preparing foods.

The Oven

Microwave ovens are available in several sizes. Most have doors hinged either across the bottom or on the left side. The oven size and direction of door swing are primary considerations when choosing a convenient location for the appliance.

Many portable microwave ovens are placed on standard kitchen base cabinets—a counter 36 inches (91.4 centimeters) high. Optional locations include placing the microwave appliance on a cart or building it into a wall or cabinet.

There are advantages and disadvantages to each of these options. Placed on an existing counter, the microwave oven extends almost to the front of the counter's edge, becomes a barrier to movement from one center to another and lessens available counterspace. But, adjacent counter and storage space may be present in this location.

Placed on a cart, an oven may be an obstacle in the work area and the cord a hazard when the cart is moved away from its usual stationary location. A cart provides space for the appliance and does not use valuable counterspace. Existing kitchen design may not allow locating a cart near an adjacent counter area for microwave oven related activities. Storage provided by an appliance cart is limited.

Building a microwave oven into a wall is not always structurally or financially possible. In some built-in locations, adjacent counter or storage space is not available. Placing a microwave oven inside a cabinet may create problems with both the doors of the cabinet and the appliance. This location does, however, provide an out-of-the-way spot for the appliance when not in use.

Appliance Height Considerations

Stooping or stretching to attend foods in the microwave oven can cause muscle strain and unnecessary fatigue. In an ideal situation, the microwave oven height should prevent strain and fatigue for the user. Height should be determined by three factors:

- comfort for the user when inserting, removing or attending foods without unnecessary stretching or stooping;
- allowance for the oven user to visually inspect foods during cooking without bending or stretching; and
- consideration of safety for inserting and removing heavy utensils or large food items without spilling or losing control of those items.

Individual microwave oven users could check these factors by consciously noticing the most comfortable height for attending foods at the oven. This height should

require no unnecessary stooping, stretching or other tiring body positions. A compromise in height location may be needed in a household where persons of varying heights use the microwave oven.

Research conducted at Colorado State University with 23 subjects, noted their height preferences for a microwave oven. For persons ranging in height from 65 to 70.5 inches (165.1 to 179.1 cm) the microwave oven was at a convenient height if placed on a counter 35 to 40.3 inches (88.9 to 102.2 cm) above the floor. For persons 64 inches (162.6 cm) or less in height, the oven located approximately 1 to 2 inches (2.5 to 5.1 cm) above standard 36-inch (91.4 cm) counter height was most comfortable. Taller persons, 70.5 inches (179.1 cm) and over, found the oven height comfortable if on a surface ranging from 36 to 43.5 inches (91.4 to 110.5 cm) above the floor, or as much as 7.5 inches (19.1 cm) above standard 36-inch (91.4 cm) counter height.

Counterspace

A standard 36-inch (91.4 cm) counter height adjacent to a microwave oven provided counter space at a height acceptable for the tasks done by most persons. It was found to be easier to remove foods from the microwave oven and lower them to counter height than to elevate them from a below-counter position. Elevating foods to standard counter height involved a risk of bumping the utensil against the counter edge.

To determine a desirable length of counterspace needed adjacent to a microwave oven, assess the numbers and sizes of utensils required for meal preparation and service tasks from that appliance. Measure the depth and length of counterspace utilized for those tasks. If a conventional oven and/or range surface units are provided in addition to a microwave oven, care should be taken so that the traditional activity center space requirements are not arrived at by accumulation (adding microwave counter space needs and range counter space needs). Each center requires its own counter space.

The most counterspace was used when the oven was placed on a front counter edge. If the oven was positioned back from the front counter edge as if it were built in or recessed, counterspace in front of the appliance also could be used. This location provided elbow room for the user close to the oven.

When the oven was placed in a diagonal position across a corner, some use was made of counterspace on both sides of the oven.

A fourth position for the microwave oven was on a front counter edge near a corner. All of the users limited counterspace usage to a depth of 16 inches (40.6 cm) from a front counter edge. The extreme corner of the counter was not used for meal preparation or service.

Storage Requirements

As with other centers, a microwave oven center should provide for useful storage. The following principles apply:

- Locate items where they can be easily seen, reached, grasped and replaced.
- Store items near their point of first use, where they tend to be most convenient.
- Frequently used items should be readily accessible without excess reaching and while the body remains upright.
- For safety, lightweight items are best stored above elbow height, heavy items below that level, and frequently used items near elbow height.
- Organization of storage is achieved by storing like items in groups and unlike items singly or one row deep. Vertical dividers, door racks, revolving shelves, tiered shelves and other accessories are available commercially to improve access to, and use of, existing storage.

Items used frequently in more than one center might be placed in the microwave oven center and duplicate items placed in the other center(s) of the kitchen.

Since paper products frequently are used in wrapping or attending foods prepared in a microwave oven, wall-mounted dispensers, below-counter drawer space or vertical storage are options for storage of these paper items. Bulk supplies of paper plates, cups and napkins might be conveniently stored in upper wall cabinets. A wastebasket in the microwave oven center would be convenient for disposal of items.

Vertical storage above a microwave oven would be easily accessible and efficient for many microwave utensils and/or cookbooks. Storage 18 inches (45.7 cm) deep above the microwave unit would accommodate trays and utensils used in larger ovens. (Standard wall cabinets are 12 inches or 30.5 cm deep.) Bringing that storage to within six inches (15.2 cm) of the front of the oven would eliminate excessive reaching into the storage unit when the appliance is placed at the front counter edge.

Hot pads, recipe books, a microwave oven thermometer or an oven probe could be stored in below-counter drawer space. Serving dishes and trays stored near the microwave oven would facilitate efficient meal service. The microwave oven center design illustrated in Figure 1 features these storage ideas. All wall cabinet sections are intended to have doors. The base cabinets pictured are pull-out units.

An innovative idea for base cabinet storage features pull-out drawer design, accessible from either side. This idea is intended for all three base cabinet sections, thus eliminating door swing obstacles in the microwave oven center.

Location Within the Kitchen

Evaluating household use of a microwave oven is important before choosing the location for this appliance within the kitchen. If entire meals are prepared in the microwave oven, consider frequency of use as an important factor in its location. If the oven is used primarily for preparing snack foods or single items, you might choose to locate the oven farther away from the central work area of the kitchen.

In the CSU research cited earlier, location of a microwave oven to the left of the sink and of a right-hinged refrigerator was determined to be convenient. (Left-handed users must consider their preferred flow of work.) If a microwave oven replaced range surface units in meal preparation, then, consideration was given to steps saved. Subjects often excluded the conventional range (or surface units) from the work triangle (sink, refrigerator, range or microwave). If a conventional oven and/or surface units were used in conjunction with the microwave oven for meal preparation, they should be located so that both appliances are usable simultaneously with limited steps.

Family use patterns vary and appliance usage changes over time. Careful evaluation of these factors is important prior to locating a microwave oven in a kitchen design. As the user becomes more familiar with the appliance, its use increases. As new utensils are available for microwave oven use, they may be added to the inventory of supplies. Therefore, it is necessary to consider expanding counter and storage spaces in the microwave oven center.

Creativity and innovation are the keys to developing a microwave oven center. Because household use of each existing kitchen and new kitchen design is unique, the information presented here should be viewed as a guide for developing your own personalized microwave oven center.

Questions to answer in developing a personalized microwave oven center include the following:

- What uses will be made of the microwave oven?
- What height is comfortable for those who will use it?
- Where will it be placed to allow adequate counter-space without taking counterspace used for regular kitchen tasks?
- Where will it be placed to allow easy access to suitable storage?
- What adaptations, short of remodeling, will be done to counter height, counter space and storage space to allow optimal convenience?
- If remodeling, how will a microwave center be designed and incorporated to meet user needs?

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