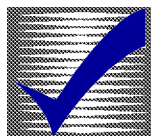




## HOW-TO BOOKLET #3097

# PLAN/INSTALL: KITCHEN CABINETS



### TOOL & MATERIAL CHECKLIST

- |   |                                   |                                      |
|---|-----------------------------------|--------------------------------------|
| <input type="checkbox"/> Sandpaper      | <input type="checkbox"/> Hammer   | <input type="checkbox"/> Screwdriver |
| <input type="checkbox"/> Nails          | <input type="checkbox"/> Screws   | <input type="checkbox"/> Level       |
| <input type="checkbox"/> C-Clamp        | <input type="checkbox"/> T-Square |                                      |
| <input type="checkbox"/> Electric Drill | <input type="checkbox"/> Glue     |                                      |

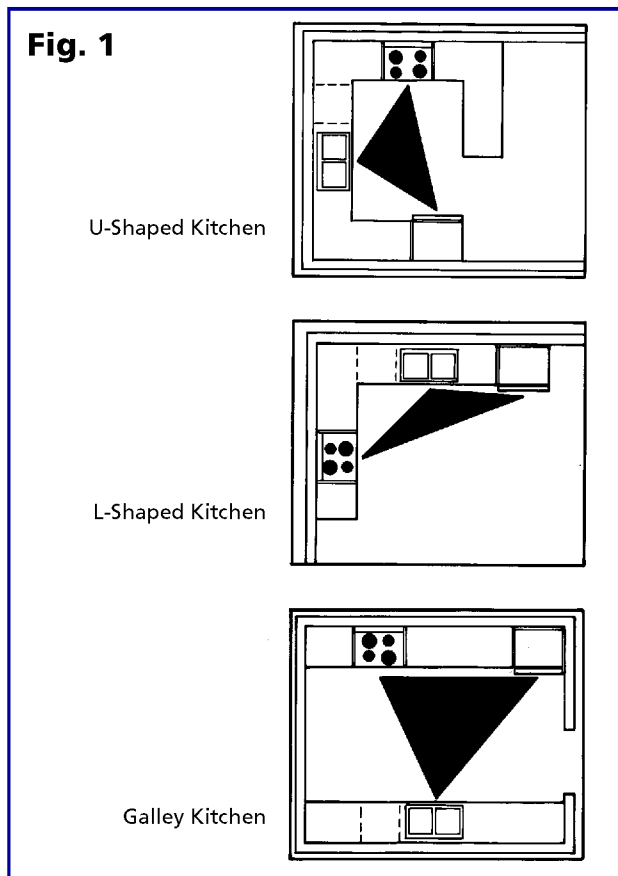
*Read This Entire How-To Booklet For Specific Tools and Materials Not Noted in The Basics Listed Above*

When remodeling a kitchen there are many things you can do to minimize costs: Do most of the work yourself; keep the same basic floor plan; minimize appliance purchases; and upgrade the cabinets as described in Booklet #3114. However, if you're going through the work and expense of installing new cabinets, you may consider redesigning your kitchen for better efficiency. Remember that most older kitchens were "put in" rather than designed. But during a complete kitchen remodel, the area may be completely out of service for a week or more.

When laying out a new kitchen, it is very important to make a scaled floor plan that takes into account such things as traffic flow, convenience, and accessibility. This drawing should also include all height and width measurements, location of outlets, wiring, plumbing, windows, and doors. Pay particular attention to the necessary clearance for doors and drawers, especially where they are kitty-cornered toward cabinets or appliances.

### THE WORK TRIANGLE

Every efficient kitchen should have three distinct areas of equipment and ideally they should be arranged in a triangular pattern. That is, in a floor plan, the lines drawn between the range, refrigerator, and sink should be in triangular configuration. This is known as the kitchen's "work triangle."



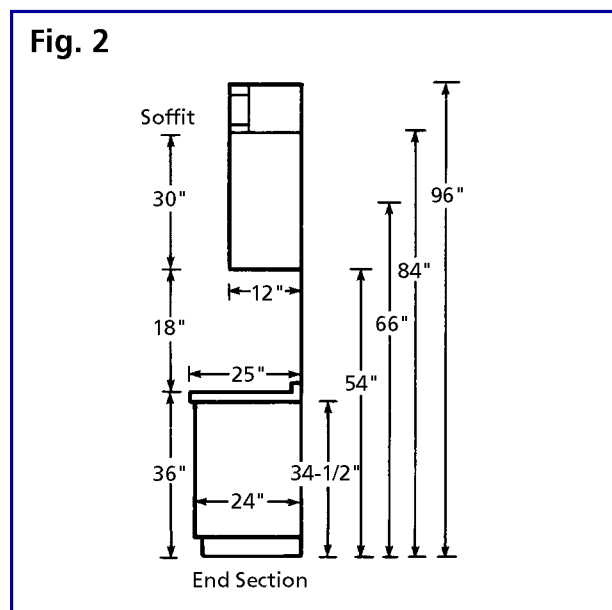
A kitchen triangle works in just about any design shape: U-shape, L-shape, or galley/corridor (**Fig. 1**). Since the logical working and walking pattern is from refrigerator to sink to range, try to put the refrigerator at the triangle point nearest the door where you bring in the groceries, the range at the point near the serving and dining area, and the sink at the point between. By cutting down backtracking the triangle pattern saves time as well as steps.

To establish the triangle, measure from the center of the sink to the center of the refrigerator to the center of the range and back to the sink. For the most efficiency, the total triangle measurement should be between 12' and 22'—with no single arm measuring less than 4'6" or more than 7'3". This triangle represents the sequence of work from one activity center to the next—from storage to washing, to preparing foods to cooking, to serving and back to clean up. If possible, miscellaneous activities and traffic flow through the room should not cross through the work triangle.

Once the triangle of convenience has been set, all that is necessary is to place the cabinets. There are three basic kinds of cabinets: base, wall, and miscellaneous. The third category includes a wide variety of ingenious storage facilities including broom cabinets, oven cabinets, refrigerator cabinets, Lazy Susans to make wasted corner space more useful, fruit and vegetable bins and tray holders. While open shelves offer attractive display space, they can be dust and grease collectors. Also herbs and spices displayed above the range look nice, but the heat can rob them of their flavor. To reduce counter space clutter, some items can be stored on pegboard and hanging racks.

The two items usually lacking in small kitchens are counter and storage space. Kitchen cabinets should be kept at a height that suits your height. The height of the counter is normally 36" with 15" to 18" of space between the counter and the wall cabinets above (**Fig. 2**). Wall cabinets should not

exceed 36" in height and the top shelf should not be more than 72" from the floor. Heights in excess of this make it difficult to reach the upper shelves. Cabinets over the sink are often built shorter and shallower than the other kitchen cabinets to make more headroom.



Electrical outlets are usually placed 44" from the floor or midway between base and overhead cabinets. Overhead cabinets are 12", 12 1/2" and 13" deep, and base cabinets are 24" deep with a 4" toe space. If you are planning a galley/corridor kitchen, remember that base cabinet widths take up 4', therefore a minimum space 8'-wide is recommended.

Basic appliance widths, unless custom-made are as follows: refrigerators 30" to 36"; ranges 27", 30", 36" and 40"; wall ovens, 21", 25", and 30"; dishwashers, 24"; and sinks, 24" to 36".

Countertops are at least 24" deep, so that appliances fit flush.

## KITCHEN PLANNING TIPS

When redesigning a kitchen, it is a must to provide electrical outlets above the countertop to service small appliances. To provide the power for the outlets from the service panel, see Booklets #3130 and #3131.

- 🏠 Use casement windows above sinks and countertops. You won't have to stretch in order to open them.
- 🏠 Don't locate the range in front of a window. It's a fire hazard. Use hood/vent systems to remove kitchen odors. Normally they should be installed before the range is in place.
- 🏠 A pass-through from the kitchen to an adjoining room can lighten the serving work load.
- 🏠 The importance of good lighting is obvious. Light all areas as thoroughly as possible. Soffit lighting can add design and utility. Task lighting under the wall cabinets cuts shadows on work areas.
- 🏠 A skylight provides a passive and efficient way to brighten a kitchen during daylight hours.
- 🏠 Locate the dishwasher next to the sink.
- 🏠 Design at least 15" of counter space next to the handle side of the refrigerator, 2' on each side of the sink and 1' on each side of the range.
- 🏠 Be sure that all cabinet doors open in the right direction for your working habits. All cabinet doors should be hinged to open a full 180 degrees.
- 🏠 Open appliance doors that block a traffic aisle can lead to bruised shins, spilled sauces and frayed tempers. Also, a narrow aisle in a kitchen invites accidents. Minimum aisle space for all kitchen design shapes should be 48".
- 🏠 A sink too close to the range or oven can lead to painful burns and scalds. Relocating a new sink may be costly or complex. Plumbing

codes are generally concerned with the maximum distance of sink drain from the vent stack.

- 🏠 Consider a free standing island or peninsula that juts out from a wall. Properly designed, a peninsula or island is a multiuse area.
- 🏠 For a snack bar or other eat-in kitchen or dining area, allow 21" to 24" of room for each person. The countertop should overhang cabinets by 12" to 15", stools or chairs should be 12" below the countertop.
- 🏠 Place a closet/pantry area or double-decker over cabinets at the end of a row of cabinets so they don't break up the counter space.
- 🏠 Install the new flooring after the new cabinets have been installed.

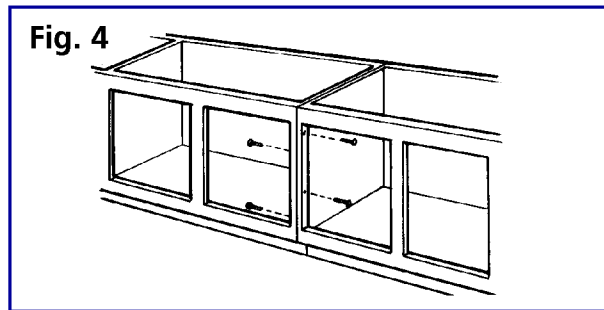
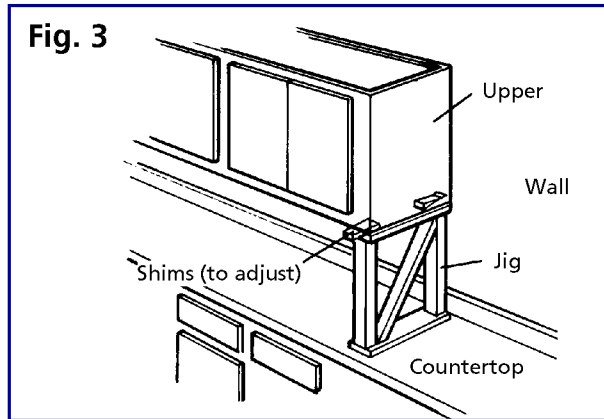
## REMOVING OLD CABINETS

When removing the old cabinets, keep in mind that they can often be reused in a workshop, garage, or laundry room, so remove them carefully. If they were built on site, they may be nearly impossible to salvage in one piece. Many old countertops were glued and screwed down, so it may take some real prying to remove them.

First remove any contents from the cabinets and the countertop. Shut off water lines to the sink and disconnect the stove and refrigerator. It is recommended that the refrigerator be moved into another room in the house to avoid damage and to allow more working space in the kitchen while remodeling is being done.

Have someone assist you when removing the upper cabinets, or use a jig such as the one shown in **Fig. 3**. Most cabinets are fastened by nails or screws through the nailing strip into a wall. They may also be nailed to the other uppers along the outside edges. You may have to pry the uppers apart after removing all fasteners.

**CAUTION:** When the last nail or screw is removed the cabinet may fall away from the wall toward you. Have someone hold the cabinet for safety's sake.



Countertops are usually secured from the underside of the counter. They can be secured by screws or nails from a diagonal plate built into the base cabinet to the underside of the countertop. Sometimes, the countertop is nailed or screwed from the top of the counter into the cabinet base and results in damage to the countertop and cabinets.

If the countertop to be removed includes a sink and/or garbage disposal, first disconnect the plumbing and wiring. Be sure to turn the power and water off before disconnecting the lines. Also, have a bucket set under the drain traps to collect the water still in the drains when removed.

**NOTE:** If the disposal is hard-wired, first turn off the power at the breaker and remove the wiring according to the manufacturer's instructions.

When removing cabinets, never pry between the wall and the cabinet. This could cause a break in

the wall surface or pipes and other hidden items that could rupture. Many base cabinets are nailed on the inside of the front face frame edges to make the frames flush. Look for any screws or nails from inside one face frame toward another.

After the old cabinets have been removed, check for uneven floors and walls. Using a straight length of 2 x 4 and a carpenter's level, check the floor for "high" spots. Check all around the room within 22" of the walls where base cabinets will be installed. Once the highest point on the floor is located, strike a level line on the wall all around the room from this high point of the floor, using your level and chalk line.

Using a straight piece of lumber, check the walls for uneven spots. Wall unevenness can cause cabinets to be misaligned resulting in "racking" or twisting of doors and drawer fronts. Where these uneven spots interfere, high spots can be removed by scraping or sanding off excess plaster. Low spots can be shimmed with thin pieces of wood or cedar shingles.

To mark the location of wall framing studs, use a wall stud finder or tap on the wall to locate a "solid" sound.

## INSTALLING BASE CABINETS

Whether you install lower cabinets first is a matter of choice. Some professionals like to install the upper cabinets first so they won't have to reach over the lower ones to install the uppers. Others like to install base cabinets first; it allows them to determine an exact height above the base cabinets. The installation sequence is the same regardless of which method you use.

**NOTE:** It is important that cabinets are set level. The doors will not swing properly or align with other doors if the cabinet is out of level.

- 1 🏠 Move the base cabinets in place starting with the corner cabinet.
- 2 🏠 Once the corner cabinet is positioned properly into the corner, use the stud marks on the

wall to locate the position of the screws for mounting the base cabinet to the wall.

- 3 Attach the cabinet to the wall with wood screws. Be sure to use shims under the cabinet base to bring it up to the previously established level.
- 4 Install the next base cabinet in the same manner. Using two "C" clamps, clamp the vertical frame members or stiles tightly together, making sure the horizontal frame members form a level and straight line. Also make sure that the frame faces are flush (Fig. 4).

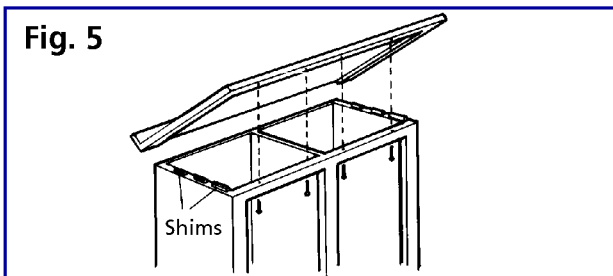
### INSTALLING A COUNTERTOP

The countertop is usually made of 3/4" particle-board or A-INT plywood, with ceramic tile or plastic laminate installed over the top. Countertops may also have preformed tops that are prefinished or cultured tops that need no base. The following instructions are for the typical laminate or tile on top installation.

- 1 Place the new top, smooth side up, on the base cabinets. Check the fit to the wall, the front and ends of the cabinets will overhang (Fig. 5).

**NOTE:** The edge on the sides and front should be even throughout the countertop. Typical overhangs are about 1" with the self edging. Overhangs vary according to personal taste.

- 2 Mark the areas to be cut, if any, remove the top, cut and recheck for fit.
- 3 Place two to four temporary fasteners through the top and into the cabinet base.



- 4 Recheck the position and secure the top from underneath. Use screws in the diagonal braces to fasten the top to the base.

**Note:** Do not use glue on the base and make sure that the fasteners do not penetrate completely through the top.

- 5 Remove the temporary fasteners in the top of the counter.
- 6 Add the front edge to the countertop. This is a smooth piece of wood about 1" to 2" wide by 1/2" to 3/4" thick. This piece is needed for laminate and other finishes to attach securely to the counter. European or frameless style cabinets simply have a narrow trim strip covering panel edges. You are now ready to install the surface, sink, and any other built-ins to the counter. Instructions for these projects can be found in How-To Booklets #3022 and #3071.

### INSTALLING WALL CABINETS

Installing upper or wall cabinets is similar to installing the base cabinets. However, the height from the counter area and the fit to a soffit or ceiling must also be taken into account (Fig. 6).

It is best to install the upper cabinets BEFORE the finished counter surface is installed. You will need to stand on the countertop to accurately fit the cabinets.

- 1 Build a jig to set the upper cabinets a set height off the countertop. Use the jig for the removal of the old cabinets, if the height for the new cabinets will not change. Otherwise, build a jig to the new specifications.
- 2 Find the layout for the wall studs and make pencil marks on the wall below and above the cabinets. This makes searching for the studs much easier when you are standing on top of the counter.
- 3 Before hoisting the cabinet, predrill the backs where they will be fastened to the studs and start the screws in the holes (both top and bottom hanging rails).

- 4 Set the upper corner cabinet on the jig and position it into place. Be sure the cabinet is level before screwing it into the wall.
- 5 Install the next cabinet in the same manner. Using two "C" clamps, clamp the vertical frame members. Check for alignment to the other cabinet's face frame if there is a continuation (see the base installation section).
- 6 Check the wall cabinet for level along the side and across the bottom (Fig. 7). If they lean in or out more than 1/8", drive in shims where needed before retightening the screws into the wall.
- 7 When level, check the doors for swing and alignment. It is much easier to adjust doors if the cabinets have first been leveled.

Fig. 6

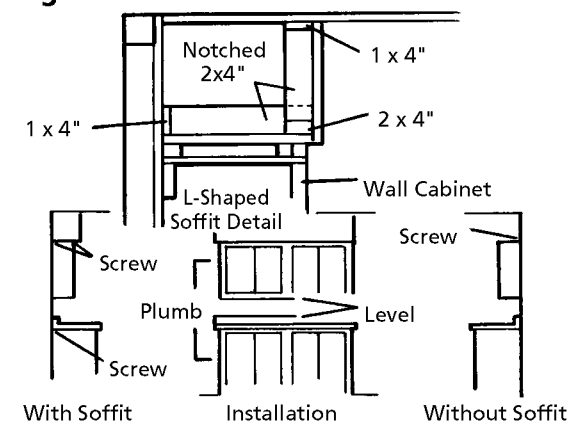


Fig. 7

