Kitchen Layout: Beyond the Triangle

by Don Silvers

Kitchen design should emphasize planning for proper work flow. Aesthetics, cabinetry, and appliances all matter, of course, but a truly successful kitchen design must also relate to cooking as a process.

That's because cooking is not a single operation, but a series of independent subsystems: grocery intake and storage, food preparation, cooking, baking, cleanup, and so forth These activities take place in a certain order, on a predictable, routine basis. If any one of the subsystems is inadequate, then so is the entire working system.

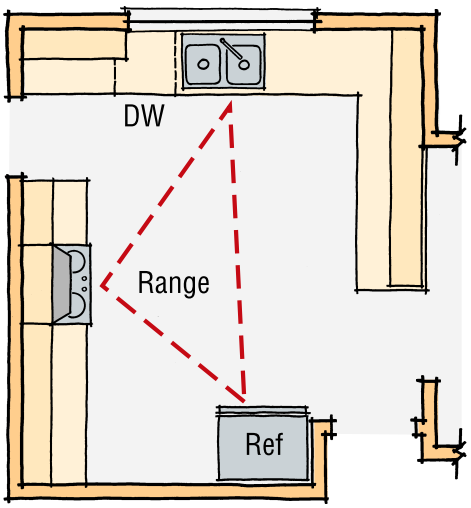
The Triangle Concept

Few residential kitchens actually work this way. Why? Most are based on the so-called kitchen triangle — an idea that emerged from a small-house study conducted at the University of Illinois in the 1950s. The study concept identified three major workstations — the refrigerator, the sink, and the stove — and placed each at one point of a triangle. It concluded that each side of the triangle should be between 4 and 9 feet, and the sum of the sides should add up to at least 12 feet, but no more than 26 feet.

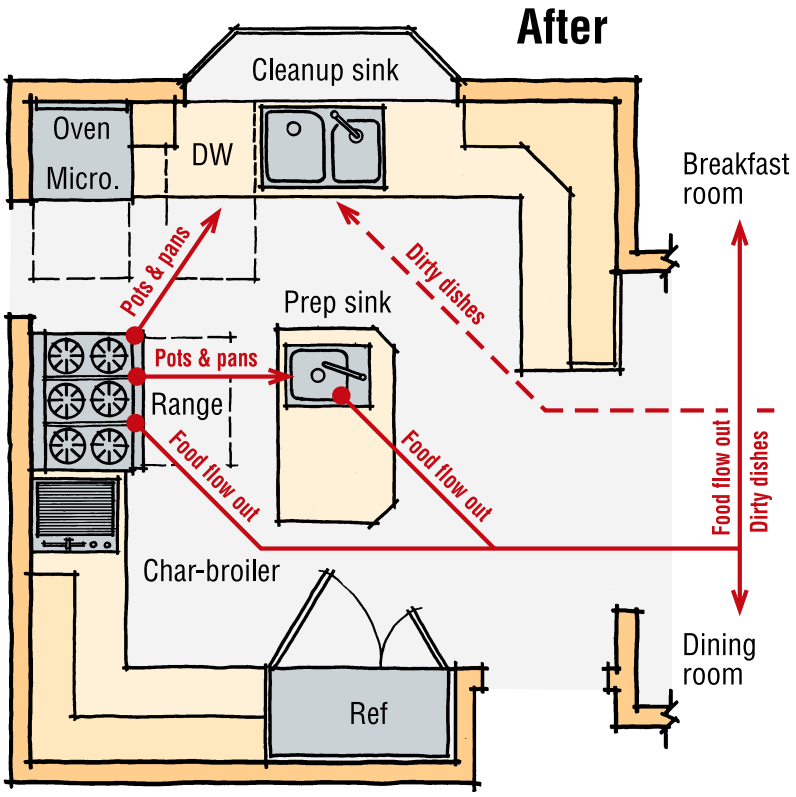
According to the study, this arrangement provided the best economy of space and movement. Thanks to its simplicity and ease of application, the triangle quickly became the dominant kitchen design standard.

The triangle concept is practical and useful, up to a point. Unfortunately, it's highly inflexible. A kitchen that has been designed on a triangular plan can't be readily compressed or

Improving Work Flow

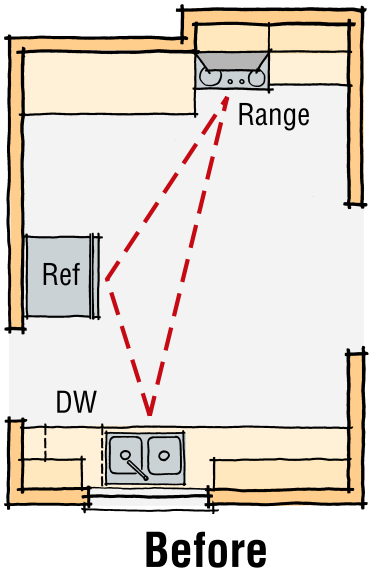


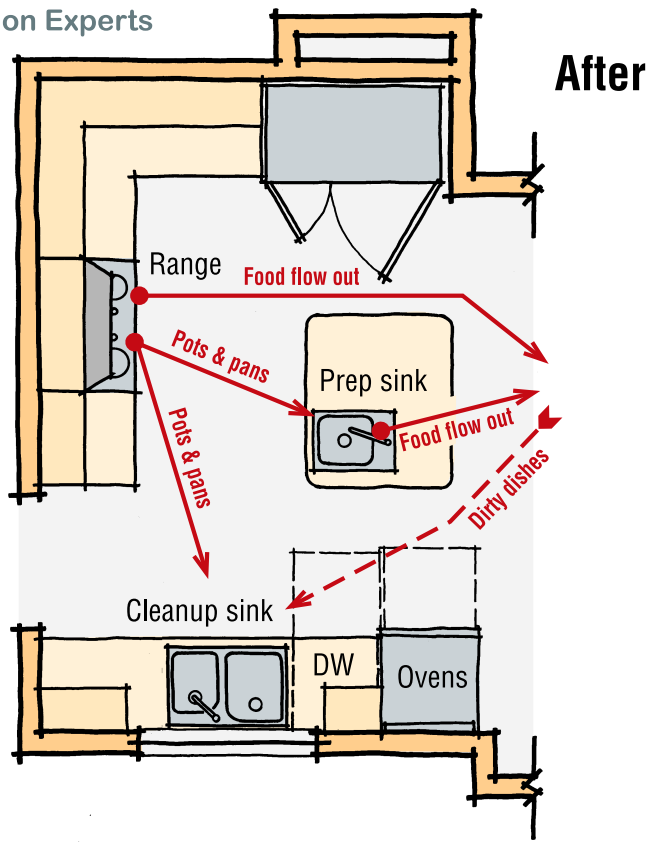
Before



Where's the triangle? Without altering the size or shape of the room (above), the addition of a second sink in the island prep counter immediately improves flow and functionality in this plan (right). A new bay window expands the sense of space.

Removing a Wall Expands Possibilities





The existing kitchen layout dutifully observes the triangle rule (above). By removing walls, upgrading the appliances, and adding the island prep center, the kitchen's ease-of-use is dramatically improved (right).

expanded to accommodate smaller or larger amounts of food preparation, because the appliances are located according to a rigid formula. In addition, the triangle makes it difficult for more than one cook to work in the kitchen at the same time, and doesn't leave an option for extending the work space.

Looking at it another way, the triangle focuses on a geometric shape, rather than on the cooking process. By adding a fourth and even a fifth point — a second sink and oven for example — the plan becomes more flexible.

How Many for Dinner?

Unlike most residential kitchens, commercial kitchens start with a specific plan of action. The designer of a restaurant kitchen will begin by analyzing the proposed menu. Knowing what kind of cooking will take place helps to determine what kind of equipment the chef will need. The designer also needs to know the dining room capacity: If it seats 100, and is expected to be filled two-and-a-half times during a meal, the designer knows that the kitchen must be capable of producing 250 meals in something like 3 hours.

In short, the plan for an efficient restaurant kitchen is determined by its proposed use, including the number of meals it must be capable of producing in a given time. The same general concepts should also be used for residential kitchen design. The number of diners per meal will probably change from one day to the next, so a residential kitchen needs to have the ability to expand and shrink, just like a commercial kitchen. If your dining room seats 12, the kitchen should be planned to serve 12 without strain.

Appliances matter. For a kitchen to function smoothly, every item in it must be carefully considered. In my opinion, the correct selection of major appliances is by far the most important consideration. The appliances and equipment that are used most frequently should be chosen on the basis of features and functionality, placed where they will allow the cook to work efficiently, and should be installed to permit easy access. The refrigerator is by far the most frequently used appliance in a kitchen. It should be convenient to counter area and the prep sink, and be configured to eliminate excessive bending and stooping to find food items. For this reason, I prefer side-by-side doors to freezer-on-top arrangements.

Designing for Flow

In addition to having the appropriate appliances, how is fluidity built into the kitchen? Whenever possible, locate two different sink stations — one to use for preparation, and the other for cleanup. The objective is to separate the sinks not just spatially, but functionally, so that two jobs can be done at once.

The cleanup sink should be next to the dishwasher, and in line with the most common eating area. Achieving

efficient traffic flow is crucial. A stream of dirty dishes flowing to the dishwasher across the cook's path will interfere with prepping or cooking, and while this might not be much of a problem when preparing dinner for two, a large family or frequent entertainers would quickly see the merit of independent paths. If the distance between prep and cleanup sinks is great, a second dishwasher, for the prep area, could be installed.

Consider cooking habits. Different cuisine and diets require different equipment and preparation. A grill, a built-in wok, a rotisserie, a griddle, a cooktop, an oven, and a broiler might all find a place in a well-equipped kitchen. Cooking requires lots of water, so a prep sink near the stove would be important. An independent source of water at the stove is an excellent provision, eliminating transfer from the sink. Select appliances capable of meeting the demands of the menu and its potential volume. A standard cooktop, with four small 9,000-Btu burners, doesn't have the size or the heat to handle cooking for a crowd.

Entertaining can make heavy demands on kitchen performance, so the kitchen should be capable of accommodating two or more cooks, or even a catering crew. Careful development of subsystems and workstations ensures that any one activity won't interfere with the simultaneous performance of another.

From my point of view, all these design principles should be applied to any residential kitchen that serves five or more people, even infrequently. The effectiveness of these principles can be measured especially well in the smaller kitchen, because good design can functionally double a kitchen's size, usually without the need for structural changes. When seen in that light, the cost of a second sink or an extra oven or dishwasher is relatively small.

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