

Is the Traditional Work Triangle Still Valid in Today's Kitchen?

By Carol Lamkins, CID, CMKBD

The kitchen work triangle is probably the most researched and applied ergonomic principle in design. It has been and continues to be the centerpiece of most kitchen layouts. The goals based upon the kitchen work triangle are to place the three most common work sites the most efficient distance apart and to minimize traffic through the work zone.



The work triangle still remains the core of the design for an individual in order to efficiently complete preparation of meals. However, it must expand and reconfigure for multiple cooks. This may be accomplished by designating task areas within the work flow thus creating a circular flow of the meal processes from storing to prepping to cooking to serving to cleaning-up and re-storing.

To begin with the work triangle, ergonomic studies have shown the kitchen to be divided into three main work sites:

1. Refrigerator - the cold storage work site
2. Sink - the cleaning/preparation work site
3. Range - the cooking work site

If you place the three center points of the kitchen work triangle too far away from each other you waste a lot of steps while preparing a meal. If they are too close to each other you have a cramped kitchen with out any place to work. The kitchen work triangle identified by the National Kitchen and Bath Association, states that each leg of the triangle should be between 4 and 9 feet, the total of all three legs should be between 12 and 26 feet with no obstructions (cabinets, islands, etc.) intersecting a leg of the work triangle more than 12 inches. Household traffic should not flow through the work triangle. Dual work triangles with no traffic cross-over are ideal for zoning the space for two primary cooks.

Just as important as the efficiency in steps, is the available clear work countertop space. Here are the minimum recommended dimensions for accessible countertop on each side of the primary areas:

- Sink: 18" and 24"
- Refrigerator: 15" on the handle side or 48" across from the front
- Range: 12" and 15"
- Microwave: 15" below or to the handle side
- Oven: 15" beside or 48" across from the front
- Preparation space: 36" or more if accommodating countertop prep appliances

The basic shapes of the kitchen can be analyzed as to their strengths, weaknesses and flexibility in meeting the needs of today's families. No matter what shape, the fundamental efficiency still revolves around the three points of the triangle.

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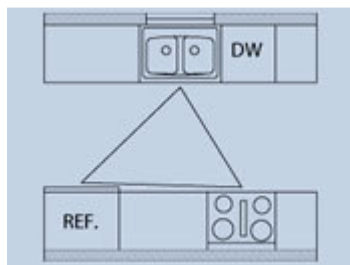
GALLEY KITCHEN –everything on a single wall

Benefits

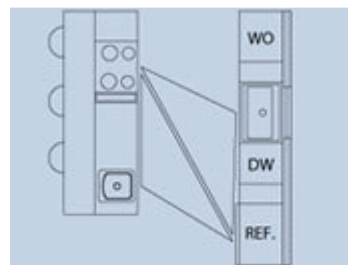
- The most efficient layout for a narrow kitchen space
- Suited for rectangular multi-purposed rooms
- May fill a long space (7 to 12 feet is recommended)
- The basic kitchen work triangle can be placed anywhere along the length
- The overall length of a the work triangle should be a maximum of 8 feet

Drawbacks

- Not efficient for multiple cooks
- Cooks must cross over work paths



Corridor with two walls



Corridor with Island

CORRIDOR KITCHEN - consists of work space on two opposing walls.

Benefits

- An equilateral triangle works best with two elements on one wall and the third centered between them on the opposite wall
- A 3 feet of walkway between counters is minimal, with 4 to 5 feet being optimal

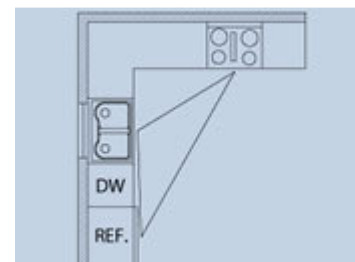
Drawbacks

- May have a single traffic lane down the center if both ends are open causing congestion
- Not efficient for large kitchens
- Not good for multiple cooks
- Does not work well for open floor plans unless one side is an island

L-SHAPED KITCHEN – Consists of two counter tops on perpendicular walls.

Benefits:

- One of the most popular and versatile kitchen layouts
- Efficient for a small and medium kitchen space
- Ideal for open floor plans, especially with island
- Great for rectangular space
- An open L-shaped kitchen allows any through traffic corridors to skirt the kitchen work zones



L-Shaped

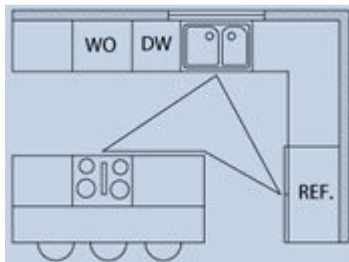
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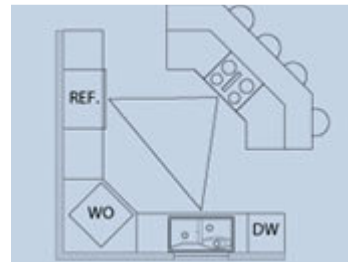
- Can adjust to any length
- Can easily divide the kitchen into multiple work zones
- Eating space can easily be added to this layout allowing a minimum of 5 feet clearance

Drawbacks:

- Not efficient for large kitchens
- Design must consider zoning for multiple cooks
- Through traffic can cause congestion



L-Shaped with Island



L-Shaped with Island

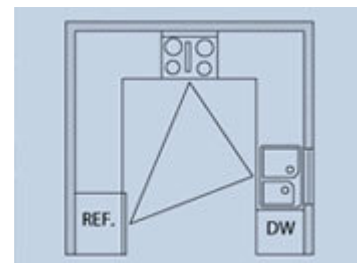
U-SHAPED KITCHEN - Two counter tops on three adjoining walls, two parallel walls perpendicular to a third.

Benefits:

- A useful and versatile layout for a small, medium or large kitchen.
- No traffic lanes flow through the work area.
- The base of the U-shaped kitchen is best when it is 10-18 feet wide.
- Wide "U" can support a kitchen island
- A U-shaped kitchen can have unlimited leg lengths based upon efficiency
- No through traffic to disrupt work zones
- Lots of counter space

Drawbacks

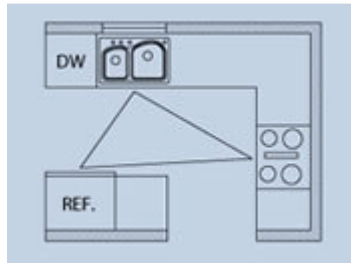
- Best for only one cook
- Not efficient for large kitchens without an island
- Not efficient for kitchens under 10-feet wide
- Bottom corner cabinets are difficult to access



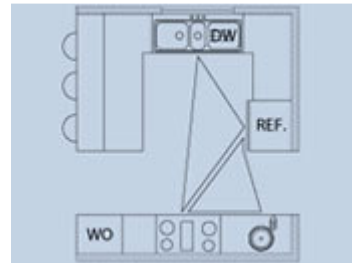
U-Shaped

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Broken U-Shaped



U-Shaped with Galley

G-SHAPED KITCHEN - Four countertops on three adjoining walls usually with a peninsula return.

Benefits:

- A useful and versatile layout for a medium or large kitchen
- No traffic lanes flow through the work area
- The base of the U-shaped kitchen is best when it is 10 to 18 feet wide
- Can easily divide the kitchen into multiple work sites, especially with two sinks
- No through traffic to disrupt work zones
- Lots of counter space
- Wide "G" can support a kitchen island

Drawbacks:

- Not efficient for kitchens under 10 feet wide
- Bottom corner cabinets are difficult to access
- Must be zoned properly for two cooks not to cross into each others work triangle
- Smaller G-shaped kitchens are congested easily with too many people



G-shaped

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For years we have based good kitchen design solely upon the work triangle for ergonomic efficiency. But are times changing the ways in which we use the kitchen? Is the assembly-line efficiency of the kitchen for a single cook with the sink under the window still the primary driving force in kitchen design? Have convenience foods affected the types of appliances and necessary space?

Many say that the modern kitchen has evolved from the primary function of food preparation to the "social center" of the home. The kitchen has opened to the family living spaces and has become a part of the social arena for family and friend gatherings. It is a reflection of the new social order which echoes the world we live in. Now family members are encouraged to engage in meal preparation as a collective experience.

This change lends itself to zoning the kitchen for one to multiple cooks while opening the work space to the social areas. Zoned or task areas could be categorized as:

- Store (refrigerator and pantry)
- Preparation (equipment)
- Cook (all cooking appliances)
- Serve (glass and dishware)
- Clean-up (sink and dishwasher)
- Convenience (independent of other work areas)
- Beverage (may include separate refrigerator)
- Communication (phone, computer, recharging stations, etc.)

Today's modern kitchen is furnished with cabinetry that blends seamlessly into the living areas of the home, successfully achieving the delicate balance between form and function. The living area integrates the kitchen as a multifunctional arena where food is prepared, people talk and guests are entertained.

The question is whether entertaining and aesthetics outweighs functionality of today's kitchen. We cannot ignore the relativity of ergonomics which is the science of optimizing human well-being and overall performance. Simply put, ergonomics is the driver for making things comfortable and efficient-based for accomplishing tasks with the goal of improving the ease of the work. For example reducing the number of steps in a task makes it quicker and more efficient to complete. If something is easier to do you are more likely to do it. Utility is the measure of the quality of a design. If you willingly do something more often you have a greater chance of liking it. And if you like doing it you will be more comfortable doing it. The bottom line is that the space needs to serve the individual(s).

Is the work triangle still valid? The answer is yes. However, the efficiency of work triangle must be tempered with task zones and streamlined work-flow to permit multiple participants. The goal of zoning is to have self-contained task areas for each individual to avoid interfering with other activities. This could be considered a form of a production line for a common end result. Tasks must be evaluated for efficiency in storage accessibility, preparation, cooking, serving and clean-up. There must be continuity in the total process of the work flow. This is very similar to the design in commercial restaurant kitchens that incorporate many separate task areas for multiple chefs.

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I will leave you with these observations concerning the evolution of the kitchen into our current and future lifestyle with new cutting-edge products.

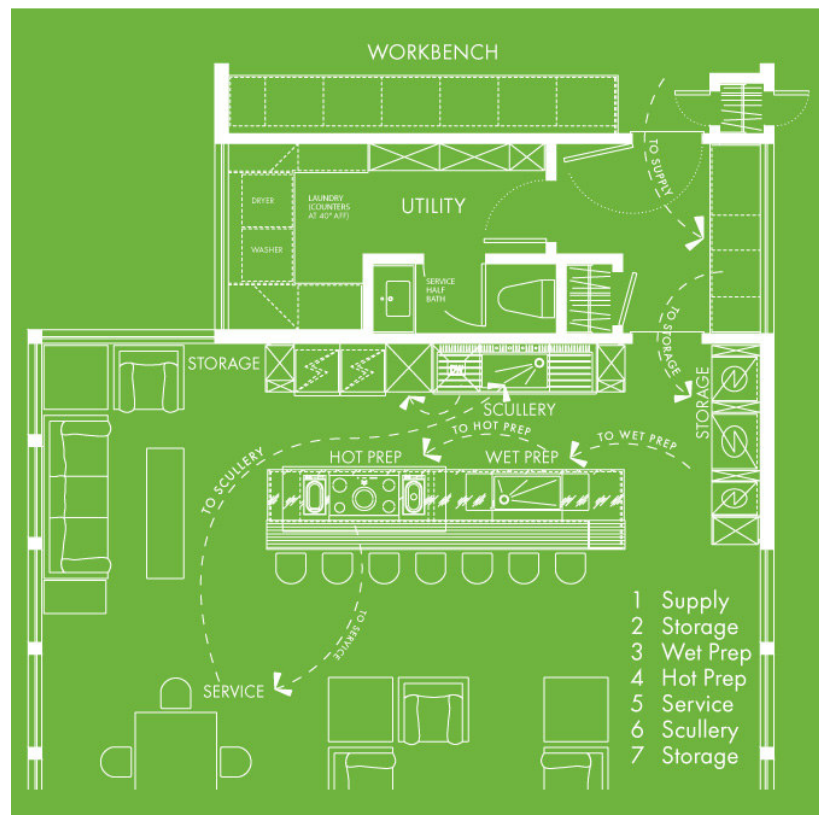
1. “Smart” appliances and products controlled by audio-visual technology, on-site and remote, have debuted in the marketplace. We have just begun the integration. Innovative companies such as Corning have already developed technology that will soon be available in products that change our lives. Check out these Websites for some amazing Corning surfaces that may very well be integrated into our near future - http://www.corning.com/news_center/features/A_Day_Made_of_Glass.aspx and <http://www.schooltube.com/video/2e5facfffe546b1570df/A-Day-Made-of-Glass-Made-possible-by-Corning>.
2. Kevin Henry, Senior V.P. of Sales and Marketing for Enkeboll Designs, shares his vision for the future of kitchen design. “Today we find a more ‘democratized’ environment, where everyone is welcome in the kitchen, a place where family, friends, and guests are invited, if not encouraged, to participate in the ritual of preparation. And with this increased activity and additional bodies, all in a high-traffic ballet of fire, boiling water and sharp pointy things, we find that the assembly-line kitchen of the past century, with its uniform horizon of sink, dishwasher, cook-top, oven and refrigerator, forever locked in its limited one-person ‘work triangle’, must make it way to a new way of thinking.” Is cookery transforming into family entertainment with the added bonus of sensory gratification and satiety?
3. The “Proximity Principles” is an evolutionary concept from Pete Walker, industry thought-leader, designer and manufacturer. This principle focuses on a kitchen arrangement around a series of task-based work centers in relative proximity to each other and in proper sequence relative to tasks as they actually occur in cookery.

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“The proximity
kitchensystem®,
reduces or eliminates
the vast majority of
unnecessary options,
elements and
configurations currently
found in both domestic
and imported mass-
manufactured kitchen
product lines. It
improves and adds to
what remains, so what
is left is the elegant
intersection of
minimalist product
volume and maximal
achievable function for
the designer or
homeowner using it.
This provides a core
efficiency and green
aspect to the products
which rise from the

design, as they are conceived to be green before they are built; and designed to be re-useable as opposed to recyclable.” Pete Walker. Check out the Proximity Kitchen Website. Perhaps this flow is the key to integration of kitchen systems of the future. Time will tell as we continue to evolve.



The Proximity KitchenSystem

Resources:

www.ergonomics.about.com

www.us.kohler.com

www.nkba.org

Kevin Henry, *The Retail Observer*, November 2011

www.proximitykitchen.com