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As Seen On



**HOW TO PLAN
&
DESIGN YOUR
KITCHEN REMODEL**



E-REPORT



Planning and Designing Your Kitchen

by
John A. Knoelk aka “Contractor John”

With
Bonus Kitchen Planning Checklist
Download checklist at [Contractor John](http://ContractorJohn.com)

DimensionBible.com
For companion information

And

ContractorJohn.com
For additional resources

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Universal Design

Designing and Planning a Kitchen That Just Works

We have all been there, in a kitchen that just works. You are at a get together, you are helping in the kitchen, and you need to find something. You glance over the myriad of doors and drawers and decide this is where it should be. Opening the drawer slowly, you discover you were correct. No, you are not psychic; everything is just where it should be, because someone took the time to design the kitchen properly, into a kitchen that works.

Before we get into actual kitchen design principles I think it is important to spend some time talking about some general design principles that can help to lay a foundation, or give you a base of knowledge that will aid in the actual designing of your kitchen. Let's begin with an often mis-understood term, Universal Design.

Universal design is a type of design that, simply put makes it easier for tasks to be completed through the use of design. Please remember universal design is not just for disabled people. If you are designing for a disabled person and/or a wheel chair bound person please refer to the ADA guidelines for kitchen design.

The kitchen is arguably the most used and busiest room in the entire home. It has become a room where not only meals are prepared, but where homework is completed, bills are paid, lunches packed and pets are fed. The kitchen also seems to attract everyone during any type of social gathering, so it is natural that we turn to universal design in the kitchen to make our life easier. We begin by breaking down the individual components of the kitchen and offering some suggestions that will help to incorporate universal design principles into the kitchen.

Counter Tops should be smooth and easy to clean. Under-mount sinks or integral bowls allow easier clean up. Also placing a cutting board on the counter-top next to the sink allows food scraps to be pushed directly off the edge into the bowl. I never understood the grouted tile counter-tops, a real nuisance to keep clean, not to mention rolling out a pie crust, I digress. If you use contrasting colors between the counter-tops and other items it will help visually impaired persons see where one stops and another starts.

Flooring should be easy to clean and slip resistant. If you spend a lot of time standing you will prefer to use a softer material, such as vinyl, rather than stone or ceramic tile.

Cabinets should be designed so the heaviest items are stored in the lower cabinets or the lower upper cabinets. The average woman is tall enough to comfortably reach into the bottom shelf of the upper cabinets, so keep that in mind. All the shelves should be adjustable and fit snugly. Door and drawer hardware should be large enough so everyone can slip 2 or 3 fingers behind it to operate.

Microwaves and Ovens should be installed so you can easily remove hot items safely. If you do any heavy cooking in a microwave, the over the stove installation is not the way to go. The same can be said for stack ovens, they should be installed side by side, with the bottom at about 30" from the finished floor.

Appliances are a tough one. Standard sizes have been around forever and are not going to change anytime soon. The dishwasher is an appliance that needs to be raised about 12" off the floor. Obviously doing this would require a taller base cabinet and change in counter height, but what if you installed the microwave over the dishwasher in a pantry style cabinet? Also available are drawer style dishwashers which makes loading and unloading much easier.

Faucets like the type in doctors' offices are the best and can be turned on and off without using your fingers, they can be pushed or pulled with the side of or a cupped hand. I am not a fan of the push button or touch faucets, they are too expensive to purchase and repair.

Lighting should be task orientated. If you have an island hang lights directly over it. If you will be working on the main counter where cabinets are located above it, then install under cabinet lighting. All lighting in the kitchen should be installed with dimmers, so everyone can use the brightness that is the most comfortable for them.

As you can see incorporating some universal design features into your plan can be easy. Whatever features you choose to incorporate will undoubtedly make your life easier.

Next we will start some critical Pre-Design Planning.

Pre-Design Planning

The basic kitchen design principles that we use today are based on research in the 1920's and they continue to work in today's homes. They are still the "Gold Standard" when designing a kitchen.

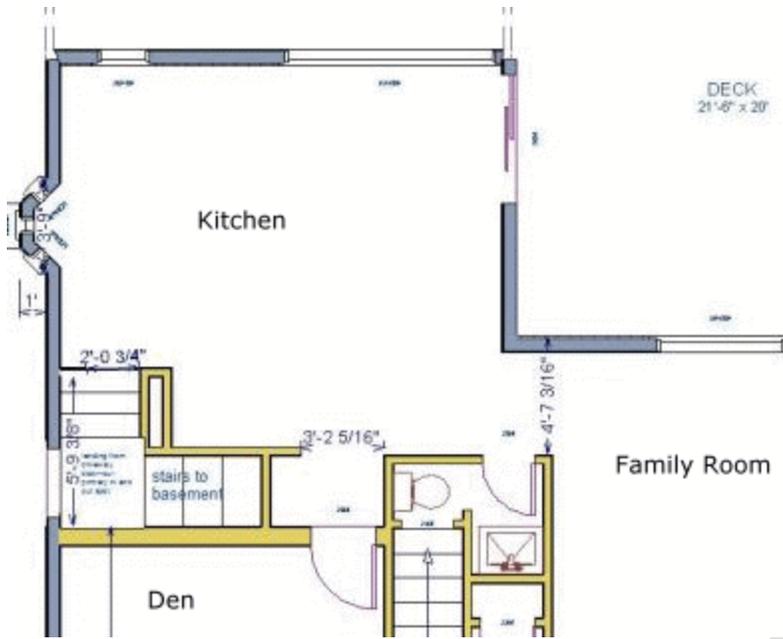
Today's kitchens differ greatly from days past in many ways, but the work of a kitchen remains the same. As stated earlier, kitchens today are used more than ever, for various activities and functions besides cooking, so it is vitally important that plenty of planning and design go into the finished product.

There are questions you need to ask yourself in the pre-design stage that will enable the designer to create a space that will be both personal and functional. I have developed a kitchen planning and design worksheet for you to use. [Download the checklist at ContractorJohn.com](http://ContractorJohn.com). This worksheet will prompt you for information that will aid you in the design of your new kitchen space. You can use this worksheet if you are doing the project yourself or you can fill it out and give it to a professional designer. The information in the worksheet will help them immensely in the designing of your new kitchen space.

After you have completed the kitchen design worksheet you will be ready to begin to physically plan your new kitchen space.

There are many free design tools online that will help you to draw out your space and make changes easily. I have a list of these design tools at ContractorJohn.com in the "Home Owner Help Section." Find one of the design tools that works well for you, and use it to help design your kitchen.

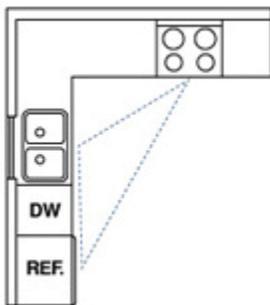
To begin your design, draw out the perimeter walls defining the space along with all adjacent rooms and their use to provide traffic pattern information. Make sure to include any island knee walls or peninsulas. Make sure to define the width of all openings to and from the kitchen. Door openings should be a minimum of 32" clear opening. That is to say if it is a cased opening or drywall opening measure from wall to wall. If there is a door involved, open the door 90 degrees and measure from the door face to the door stop on the opposite side (remember you want 32"). If a cabinet runs parallel to the opening and "the hallway" created by the cabinet exceeds 24" in depth (length) then the width needs to expand to 36". If a stove is the item creating the "hallway" make sure it is buffered from "the hallway" by a 12" cabinet and that there is a minimum of 15" wide clear counter-top space on the side opposite the "hallway" to place a hot pot on. One last point is to make sure any doors do not interfere with the operation of any appliances. Aisles are defined as any space between two stationary objects, such as cabinets, islands and appliances. Aisles in the kitchen should be a minimum 42" wide for 1 cook, and 48" wide if there are going to be 2 cooks working at the same time. Aisle widths should be measured from the leading edge or protruding handle of any item to a point directly across from it. Major through traffic should not flow through the work aisle. If you find that this situation does exist, then redesign the area to eliminate the pattern.



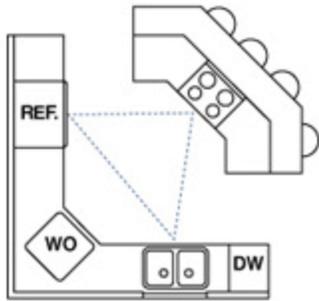
This would be an example of a typical “before drawing” of the available kitchen space and the necessary information for you to begin to plan your space. Add your room dimensions and you are set to begin your planning. The next phase of planning involves creating the infamous kitchen work triangle.

The Infamous Kitchen Work Triangle

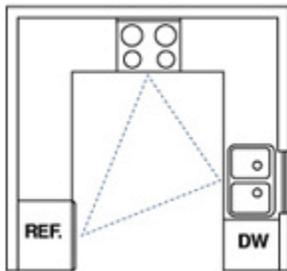
Have you ever heard of the kitchen work triangle? The space created by this triangle allows greater efficiency while working in the kitchen. This work triangle is formed by drawing a line from the front center of the refrigerator, the front center of the stove and the front center of the sink. No single leg of the triangle should be less than 4’ or more than 9’ and the total of the legs should not exceed 26’. Multiple work zones and multiple work triangles can be established with the addition of dishwashers, trash compactors, etc. Look at the drawings below to see examples of different kitchen work triangles and an example of a bad one.



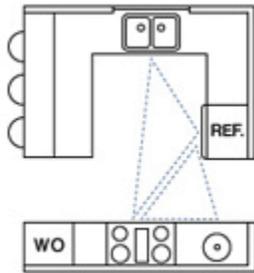
This is an “L” shaped kitchen and example of a typical work triangle, that also includes the dishwasher inside that work triangle.



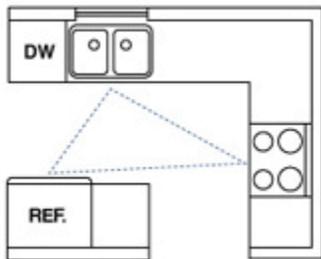
Here we have an “L” shaped kitchen with an angled island that contains the cook top. The work flow in this kitchen is enhanced.



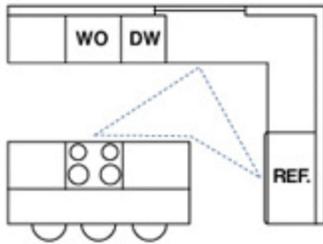
In this “U” or Galley style kitchen there are distinct and separate working areas formed by the work triangle.



This is a hybrid “L” with an island and a snack bar. It features multiple work triangles



An open “U” design is okay unless it forces traffic through the kitchen to enter an adjoining room. Once again an appropriate work triangle has been established.



Here you have an example of a work triangle that doesn't work. If you angled the island it would improve the function of this kitchen.

Now you have a visual of what makes up a functional and efficient work triangle and what to avoid in planning your space. Now we will move on to talking about appliances and how they will fit into and anchor the work triangle and enhance your kitchen.

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Adding Appliances to Your kitchen

Kitchen appliances have come a long way. Twenty years ago kitchen appliances mainly consisted of a 30" stove, a 36" refrigerator and a sink that fit into a 36" base cabinet. The electrical needs were a fraction of what is needed today. Today there are many more choices. We will begin our discussion with stoves and ranges.

Find all the rough-in dimensions and measurements for appliances such as where do you install the refrigerator water line, and what about the stove gas line? Where does the outlet for the microwave belong? Find all this information and so much more in "[The Dimension Bible for Remodelers and DIYers](#)"

Stoves, Ovens, Exhaust Hoods

When selecting your stove/oven or cook-top and separate oven you have the choice between gas, electric or induction. A gas stove, either natural or propane is the most common followed by electric and a form of the traditional electric stove called induction. Induction type stove is a flat sealed surface powered by electric. It is the most efficient use of energy but not necessarily the cheapest to operate, depending on your utility rates. Personal preference is the key to choice. Next you can select the size and configuration. A combination unit with stove top and oven in one unit or a separate cook-top which is usually combined with a double oven, or single oven and warming oven. Another choice in ovens is the conventional bake, roast, broil or a convection style oven. If you entertain and cook a lot you may upgrade to a commercial style stove/oven with 6 burners and/or built-in grill. Keep in mind if you upgrade the stove you will also have to upgrade the size and capability of the exhaust hood. Range or exhaust hoods come in a wide variety of styles and capabilities as far as removing the dirty air from the kitchen. The basic types of hoods are either single exhaust hoods or combination exhaust hood/microwave. Combination units can easily be configured to remove the air outside or to filter it, generally very poorly, and re-circulate it into the kitchen. Larger capacity hoods are single use and will move quite a bit more dirty air. I highly recommend you exhaust all dirty directly outside instead of using the filter and re-circulate option.

Microwaves

Finding the space necessary for a microwave was a major problem when they first arrived on the scene, taking up valuable counter-top real estate. As mentioned above microwaves now can be purchased in a combination unit with an exhaust fan so they can be installed over the stove. Some units can be built into the cabinets but provisions must be made for proper venting of the unit. Microwaves all cook the same way except convection microwaves. These type of units are like mini ovens and can eliminate the need for a second full size oven or warming oven. If you entertain and cook large meals a lot this may be a great option. Built-in microwaves and the units that combine an exhaust

fan and microwave come in a standard 30" width. This makes it easy to install them over a standard 30" range.

Refrigerator/Freezer

Refrigerators come in a myriad of combinations and sizes. Beginning with a 24" wide, progressing to a 30" and what has been the standard size for decades 36" wide, although much wider units are available. The depth of a standard refrigerator is about 30" which means it will stick out approximately 6" from the counter-top face, although you can purchase counter-top depth units that give that built-in appearance. Refrigerator freezer combination units typically can be side by side or over/under. Having access to water and ice built into the door is an energy saving feature, because you are not continually opening and closing the door. Some higher end units have replaceable filters to assure you of clean drinking water.

Dishwashers

Everyone is familiar with the standard drop down style door of a dishwasher. That style has been around since they were first introduced into the kitchen. Now there is a new type of drawer dishwasher that can be mounted higher off the floor to make loading and unloading easier. All but the very high end dishwashers come in 24" widths and are made to fit under the counter-top. The front door of the dishwasher comes in a variety of colors and finishes with stainless steel being the most popular. Some units actually accept a wooden panel to match your cabinet door style and color. The cheaper models simply do not clean dishes adequately, so stay away from them. Instead invest in a quality model.

Sinks

People generally don't think of sinks as an appliance but let me tell you a sink is an integral part of a properly functioning kitchen. Sinks come in two mounting styles either top mount or under-mount and a hybrid the integral bowl. The top mount and its cousin the self rimming mount have been around for decades. The under-mount really came into vogue with the introduction of granite, quartz and acrylic counter-tops. Integral bowls became possible using a solid surface such as Corian. The sink itself could be made of the same material that the counter-tops were made of and the two products were joined together with no visible seam. All sinks styles come in a variety of shapes and sizes and configuration. Deep, shallow, 1 bowl, 2 bowl, 1 deep and 1 shallow, and the list continues on and on. Also, the sink bowl material can range from stainless to cast iron to Ameri-Cast, to solid surface materials. Your selection will have to do with the way you intend to use your kitchen and the look and feel you are trying to achieve

Garbage Disposal

Garbage disposals were invented in 1927 and come in two basic types; continuous feed, which are far and away the most common residential units, and the batch feed type

of disposal. Continuous feed units are switched on generally by a wall switch and with the water running you can continuously feed the food waste into the chamber, taking care to keep your hands away from the entrance to the chamber. A conventional garbage disposal will grind and pulverize solid food type items that would wind up in the garbage can and eventually be introduced to a land fill. Combining the pulverized food with water will help it travel through the sewer pipe system to the waste treatment plant. If you have a septic system, you will have some limitations with regard to what you can introduce into that environment without damaging the eco-system of the septic tank. A batch feed disposal allows you to (with the unit off), fill the chamber, place a lid on it, then switch it on until it is empty and repeat the process.

These disposal units come in sizes ranging from 1/3 hp, 1/2 hp, 3/4 hp and 1 hp motors. I personally would not recommend any unit below a 3/4 hp, as jams are a common occurrence with the smaller size units. Top brand names are Badger and Sinkerator.

Trash Compactor

Trash compactors are handy little gadgets, especially in a larger family. They are mounted under the counter much like a dishwasher is, with a pull out drawer where you place the garbage. Closing the door and starting the unit compacts the garbage many times less in volume than a conventional kitchen garbage bag. Some units have built-in odor protection.

Conclusion

There are other specialty appliances that are available for your kitchen, such as wine coolers, etc. I have covered all the basic appliances and their functions so you can use this information to begin the actual design of your kitchen by placing cabinets around your new appliances.

Kitchen Cabinets: The Character of Your Kitchen

After you have placed the appliances in your drawing and created your work triangle it is time to place the appropriate cabinets between the appliances. For this discussion we will leave the cabinet style out of the discussion and instead focus on the type or the individual configuration of the cabinets. Something you should think about in the general configuration of the cabinets is location. For example drawers that hold silverware and utensils should be located close to the dishwasher, while cabinets for storing large pots and pans should be located by the stove. Larger odd shaped items and how often you use them will help to determine if they are given storage space in the kitchen or instead stored in a closet, pantry or basement storage area. Remember to include space for utensils and small appliances that you may not have yet, but that may be part of your new kitchen. There are two ways to go with the cabinets, custom and box cabinets. First let's take a look at custom cabinets and what they offer. Critical dimensions and measurement, what to look out for and how to plan correctly, all this information is in [“The Dimension Bible for Remodelers and DIYers”](#)

Custom Cabinets

Custom cabinets are just that, individually built to your style, color, specification and configuration down to the sixteenth of an inch. It is wise to begin your layout of cabinets with the base units. The usual configuration of the lower or base cabinets would include doors in the lower 2/3 and a drawer in the upper 1/3. False drawer fronts are added for looks on the sink base cabinet because the sink takes up the space a drawer would. An option for the false drawer fronts is that they tip out and allow storage of a sponge or other small items. This tip out tray is a great place to keep the allen wrench that comes with the garbage disposal to use in the event the disposal becomes jammed. Another option is a Lazy Susan in the corner cabinet, and a narrow cabinet next to the stove to store cookie sheets along with other large sheet pans. A garbage can is usually housed under the sink, but another cabinet can have a pullout drawer in which a trash can and a recycle bin are held. A bank of drawers with different depth drawers is also a great option. Something not to forget is an area to store those larger counter-top appliances like a blender, food processor, or a juicer. A great way to increase storage is to increase height of the upper cabinets from the standard 30" tall to 36" tall or even 42" tall which would bring them to the bottom of a normal 8' ceiling. The choices of door and drawer hardware are almost endless. When it comes to door hinges, there are many types and styles, some of which allow your doors and drawer to close softly, others allow you to adjust the alignment in every direction. Prepare to pay a premium with these “special” hinges even in custom cabinets. When ordering custom cabinets expect to wait 5 to 8 weeks from the time you order to the delivery, so planning is essential.

Box cabinets

Box cabinets are so named because they are delivered to the job site in boxes and are made in pre-determined sizes and configurations. There are some “semi-custom”

companies out there, but for the vast majority of companies the cabinets they manufacturer come in standard widths. These widths start at 12” widths and increase by 3”, so if your room is not an exact multiple of 3 inches you will have to use fillers or blanks to complete the install. Box cabinets have come a long way in the last 20 years and now feature many options, such as pullouts, spice racks, Lazy Susans, etc., that were not available back in the day. Remember these are still stock cabinets, so there are limits with regard to configuration, style and color elements. Usually there are about a dozen different door hardware options to choose from, more if you choose to upgrade and pay a premium. When upgrading semi-custom or box cabinets, be careful you do not upgrade yourself into the price range of custom cabinets, without all the added benefits. A nice benefit to box cabinets if you are on a tight schedule is the lead time. From order to delivery is generally 1/2 the time of custom cabinets.

Next, we will take a quick look at seating in your kitchen and how it can add versatility to your kitchen, along with enhancing the interaction between cooks, family and friends.

Seating

We have all been in the house with tight seating, where all too often somebody, and sometimes everyone on one side of the table are trapped. To eliminate this you should allow ample room between the table and stationary objects. The minimum space between the edge of the table and the wall should be 32" if there is no traffic behind the person who is seated. If there is traffic moving back and forth behind the chair then a minimum of 36" is needed, increase that to 44" if you prefer to have a person pass behind the seated person without turning sideways. Always remember when you measure to begin from the front edge of any protruding object to the back of the chair as if someone was seated in that chair. People of all shapes, sizes and ages will be seated at your table so make sure you plan accordingly.

Next, we will take a look at lighting and how it can add, or detract from the character of your new kitchen.

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Lighting

Lighting can often set the tone of a room. It can add emotion and set the mood. Turn the lights down for an intimate or romantic dinner party, add the light from a few candles and the mood is set. On the contrary insert 100 watt bulbs in all the fixtures and it will have the look and feel of a cafeteria. Proper, efficient lighting in today's designs is essential.

As I alluded to above lighting wasn't something that was thought of in the actual design of a project years ago, but with advances in professional design and the addition of energy efficient bulbs it is increasingly critical. The original equipment incandescent bulbs that were the mainstay and most of the time only light source in the kitchen are being replaced by energy efficient bulbs, such as CFL and LED. These newer type energy efficient bulbs generally produce less lumen's then incandescent bulbs. In simple terms lumen's is the measurement of the brightness of the bulb, or how much light it projects. Since energy efficient bulbs equal less actual light, it is critical to place lighting where it will illuminate the work area. Enter the growing market of task lighting. Task lighting is defined as lighting that is placed to illuminate a specific area for a specific task. In most cases that would mean additional electrical openings and light fixtures to achieve proper results.

Recessed cans may be used for task lighting and can be installed to illuminate a particular area; something that is "locked into" that location. Can type lights can be used to light counter-tops with cabinets over them, such is the case in a normal kitchen. These can lights must be installed very close to the face of the upper cabinets so when the person is standing at the counter-top their body will not be between the light and the counter-top, in which case the person's body will cause a shadow. A great solution for task lighting in the kitchen is under cabinet LED lighting. This type of lighting will require additional receptacles along with a switch which must be added into the plan at an early point.

Track lighting is another effective way to illuminate the needed areas. Rigid or straight track is generally available in 2', 4' and 8' lengths but can be combined and joined together to fit almost any situation. A newer style track lighting that can be shaped and formed to meet individual needs has many advantages over the rigid type.

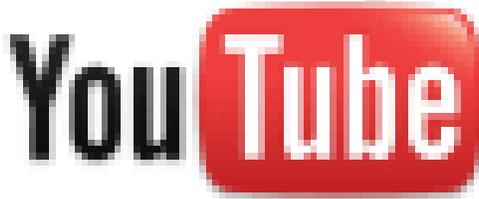
Another option that is overlooked many times is natural light. Conventional skylights and the skylight tubes offer a natural light in a way that does not interfere with the wall layout, such as a window can, and if configured correctly can add some solar gain.

As we talked about in Universal Design, dimmers are an essential part of a design and give you versatility. A softly lit intimate dinner party, to a brightly lit homework area for the kids is but one example.

Summary

As you can see proper designing of the kitchen takes a lot of planning and thought, but with that effort will come a truly functional kitchen. Remember to start your project by downloading the kitchen planning and design checklist at ContractorJohn.com, add the proper kitchen work triangle featuring your appliances, sprinkle in the cabinets, arrange seating, and add the lighting to enhance the feeling you are trying to achieve,. You will have a beautiful and functional kitchen of your dreams, but more importantly you have a kitchen “that just works.”

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Additional Resources

One resource that you will find invaluable is "[The Dimension Bible for Remodelers and DIYers](#)" Here you will find all those critical dimensions and measurement that will help you to create a professional looking finished project.

"We know what we know

We know what we don't know

But, we don't know what we don't know"

The Dimension Bible covers the "we don't know what we don't know" part

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