



# Not Too Big... Not Too



# A Goldilocks Approach to Kitchen Design

**A** strong concept, a great team, and consistent, quality execution are all important to make your restaurant a success. But without the right facility, it's much harder for your good ideas and management skill to lead to profitability. In a good restaurant, size matters; the size of the kitchen, that is. Do you have the right amount of kitchen space? Have you allowed enough room for storage? Will you have enough space to support your usual lunch business while you prep an off-site catering event for 200?

Determining how much space you need for your back-of-the-house functions takes a little bit of science, a little bit of art, and a whole lot of planning. There are a lot of decisions that need to be made even before you look for your site. Here we'll look at which ones have the most influence on the size of your kitchen, and offer guidance to figure out how much space you need for storage, preparation, cleaning and management functions.

By Stephani Robson

## Small... Just Right



## Too Big or Too Small

If you've worked in an independently owned restaurant, chances are you've worked in a kitchen that is too small. You know the type: boxes stacked 6 feet high in every corner, every available surface covered with bus tubs and sheet pans, and no room to maneuver. While it might be tempting to keep kitchens small and allocate the maximum amount of space to your dining room which, after all, is generating your revenue, this approach can go too far and actually decrease the restaurant's ability to make money. A kitchen that is too small can sometimes make it harder to get the food out in a timely way, as employees have to constantly step aside to allow others to pass or to access items that may be blocked by someone working the line. Small kitchens can also lead to more accidents because there is less room to maneuver on slippery floors or around hot or sharp objects. Another problem is the increased possibility of cross-contamination between raw and cooked foods. This is particularly problematic when the cooking line ends up doubling as prep space during service, and products like raw chicken and seafood are being manhandled near the salad greens. And lastly, a small kitchen is often hard to keep clean because the tightly packed equipment and piles of boxes everywhere make it hard to get into all the nooks and crannies that seem to attract crumbs and grease.

However, a kitchen that's too big has its own problems. Kitchens with lots of extra space tend to collect "stuff," becoming repositories for things that have no place in a professional kitchen: broken furniture waiting for repair, boxes of holiday decorations, extra highchairs, those old menus that you think you might use again some day. A too-big kitchen is also hard on your employees. They may have to travel greater distances to get what they need time and time again, or take more steps while working the line and become more fatigued as the shift goes on. Finally, a large kitchen is expensive: expensive to build, costly to maintain and not a direct generator of revenues. Restaurant devel-

opers on a budget usually can't afford to put in a kitchen that is far larger than the restaurant needs.

## What Influences Kitchen Size

So how much back-of-house space do you need? The most important question to ask when sizing a restaurant kitchen is, "What do I want this kitchen to be able to do?" A restaurant that makes everything from scratch including the rolls and desserts is going to need more space than one that just reheats products purchased from elsewhere. Likewise, menu items that require multiple steps or components will generally need more space and equipment to execute than simple items. First and foremost, decide on the degree of preparation you intend to do for the major categories of your menu items. You might want to do your salads from scratch using fresh-from-the-farmer produce, but you may decide to purchase your desserts from a local vendor or buy your meats pre-portioned in vacuum packs. In general, the less you prepare on site, the smaller your kitchen space needs to be (but in some cases, the larger your storage areas need to be).

How many meals do you intend to serve from this kitchen in a day or a week? This is a more important consideration than just your number of seats, because you may be doing off-site catering, or preparing items for takeout. Restaurant chains that have recently embraced takeout and curbside delivery often discover that their kitchens were never sized to handle the added workload, to say nothing of the paper products needed, and have had to redesign some of their units to support this additional revenue stream.


Next, consider your purchasing and receiving practices. Is your restaurant in a city where you can get daily deliveries, or do you need to stockpile items until the next time the fish van comes? Daily deliveries allow you to cut back on storage space. This is what automakers call "just-in-time delivery," a practice that allowed them to drastically

reduce the size of their manufacturing plants. In many places, you can work with your suppliers to increase the number of visits they make to your operation each week, allowing you to keep fewer products on hand at any given time. Are you buying fresh items that may still have dirt and excess greenery clinging to them? Is it your policy to weigh deliveries before putting them in storage? If you answered yes to either question, you'll probably need a small space near the back door for receiving where you can put a scale and a clipboard with your purchase invoices for quick reference, as well as rinse off and repackage fresh items so that you reduce the chances of bringing unwanted pests into your operation. If you receive whole fresh fish, you'll want this space to have easy access to ice as well.

**One of the great things about space is that it is three-dimensional, and the wise restaurateur keeps that in mind when planning a kitchen. Tricks like putting up shelving over every prep table, using 'low-boy' refrigerators as prep surfaces, stacking cooking equipment where feasible, and using space under prep tables to store nonfood items are all effective ways to get the most out of your square footage.**

What is your beverage program? It stands to reason that more beverage options means more space needed for storing the products as well as for handling specialty glassware. And do these beverages require special handling? Having lots of beers on tap or offering a sophisticated wine list is going to require temperature-controlled storage separate from your usual walk-in refrigerators.





The number of employees working in the kitchen can also affect its size. A small restaurant with fewer than 50 seats might have only two or three people working inside the kitchen, whereas you might have a couple of dozen employees back of house for a really large operation. Larger numbers of employees require more room for changing and storing personal items. And with a larger operation, you may want to offer your employees a breakroom of some sort, further adding to the space you'll need.

A final factor that can influence kitchen size is whether you plan to have an open kitchen. Dynamic, dramatic and popular, open kitchens animate your restaurant but often at a cost in space. The less attractive functions that we usually can put close to the cooking line or prep areas now must be shielded from the guest's view (although there are some restaurants that boldly put the entire kitchen, even ware washing, on display). This separation of functions translates into another wall or two, perhaps some extra corridor space, and almost certainly higher square footage overall.

## Some Sizing Benchmarks

Once you have determined the policies and practices that will affect your kitchen size, you can develop an estimate of space requirements. While there is no hard-and-fast rule about how much space to allocate per seat or per meal, there are some guidelines that will help you work out what portion of your total space needs to be dedicated to kitchen and storage areas, and how those areas might break down into different functions.

For full-service restaurants, the back-of-house area tends to take up anywhere from 30 percent to 40 percent of the total restaurant space. This proportion depends on the factors mentioned earlier: complexity of the menu, food production methods, frequency of deliveries, and need for supporting functions like catering or employee areas. For fine dining restaurants with their demanding preparation needs and extensive supply of small wares, it is not uncommon for the kitchen to take up as much as half of the total space. Fast-food restaurants also have more back-of-house than front-of-house in most cases, particularly if they have a

drive-through. And concepts that offer only takeout or delivery service have virtually no front-of-house at all.

That said, there's still a basic calculation you can do to get started in determining your kitchen space needs. First, take the number of seats you'll be supporting, including any bar seats or outdoor dining, and multiply by 12 to get a base number. (If you plan a white-tablecloth restaurant with a complicated menu that you prepare all in-house, use 14 as your multiplier instead.) This base number probably will need adjusting to account for your operational plans as well as the circumstances of your particular space. If your menu is challenging, you have unusually high storage needs, or you have a large kitchen staff, increase this base number by 10 percent to 15 percent. Conversely, a really simple menu prepared by only one or two people, coupled with frequent deliveries and/or a lot of preprepared items can reduce this base number by 15 percent or more. (See "Rule of Thumb: The Basic Back-of-House Space Requirement" on Page 40.)



## Rules of Thumb

### The Basic Back-of-House Space Requirement

Sizing a kitchen is a blend of science and art. Here is a framework for working out back-of-house space requirements for full-service, casual dining restaurants. Other types of restaurants often have even more back-of-house (BOH) space. The rule of thumb for basic back-of-house space requirement is:

**Total number of seats x 12 square feet**

Increase the basic BOH requirement by 10 percent to 15 percent (or more) if you:

- ✓ Only get deliveries infrequently.
- ✓ Do off-site catering more than a few days per year.
- ✓ Have an extensive beverage program.
- ✓ Do your own baking.
- ✓ Want to have an open kitchen.
- ✓ Have a spread-out or architecturally complicated space to work with.

Decrease the basic back-of-house requirement by 10 percent to 15 percent (or more) if you:

- ✓ Can get frequent “just-in-time” deliveries.
- ✓ Have a very simple menu with only a few items.
- ✓ Purchase a lot of preprepped ingredients, baked goods and desserts.
- ✓ Have access to shared storage space (as in a shopping mall).
- ✓ Have a simple, column-free space to work with.

The space you plan to move into can affect the base number as well. Unusually shaped kitchens or ones with staircases, structural columns or a lot of walls running through them will increase the total amount of space you’ll need to allocate for back-of-house functions. A recent study that looked at space efficiency in professional kitchens found that around 25 percent of back-of-house areas was taken up in nonproductive space for walls, stairs,

columns and corridors. So the more spread out your kitchen, the more space you’ll need in total. When you can, try to keep all of the back-of-house on the same floor, and keep the functions close together to reduce the amount of space you’ll need for circulation, or “walking around” space.

## A Hypothetical Example

Here’s an example of how to work out kitchen size for a hypothetical restaurant. Imagine that “Akimbo” is an 85-seat casual bistro serving fresh, Asian-influenced cuisine. It’s on the ground floor of a small office building that was built in 1920 in a major eastern U.S. city. The chef-owner anticipates serving lunch and dinner, with dinner being the major source of revenues. All produce and meats used in the operation will be prepared from fresh ingredients purchased locally whenever possible, but the desserts and breads will be brought in from a well-known bakery and patisserie in town. There will be three people working the line during dinner service, as well as one dishwasher. The restaurant will have a full bar as well as eight to 10 beers (three of which are on tap) and a 75-bottle wine list, and all beverages except coffee will be poured at the bar. How much space will this restaurant need for its kitchen?

First, let’s work out our base number: 85 seats x 12 = 1,020 square feet. Since Akimbo is in a major city, it can most likely arrange for more frequent deliveries, which is a big plus, given the emphasis on fresh ingredients. There is also no baking being done on premises, further reducing storage and prep area needs. The kitchen staff is small, too. However, Akimbo’s comprehensive beverage program means more storage requirements for alcohol that is delivered only infrequently as well as for a wide range of glassware for all the different types of wines and beers being offered. Furthermore, being in an older building suggests that the back-of-house spaces may have lots of structural columns or other architectural challenges that we wouldn’t find in newer construction. Given all of this, it would probably be wise to shoot for no more than a 10 percent reduction in the base number, leaving us with a total back-of-house area of about 950 square feet.

The more you know about the menu and how it’s prepared, the more you can fine-tune this number to get an accurate kitchen size. How many ingredients are needed for Akimbo’s menu, and at what temperatures do they need to be stored? How much prep does each ingredient require before it’s ready for final cooking and assembly? Are most items sautéed or grilled, or are there multiple cooking steps to create the final dish? Even a factor such as how each dish is plated makes a difference. The trend toward having a wide range of plate styles and shapes may make for a dramatic presentation, but it’s probably going to increase the size of your kitchen a bit because you need a place to keep all those different types of tableware (and chances are they don’t stack as well as regular plates).

## Breaking Down the Space

Once you have a total estimate of the space you’ll need for your back-of-house, you can further break this number down into estimates for storage, food preparation, ware washing and support spaces. Again, restaurants vary widely in their needs for each of these functions. For example, if you serve all your meals on disposables, your ware washing needs are, of course, greatly reduced, whereas you’ll probably need more dry storage space for all of the paper and plastic products you’ll be using. The more preplanning of your operation that you can do before you go hunting for space, the more likely you are to end up with a space that is right for you.

In the table below are some very broad guidelines that you can use as a starting point for determining how to allocate your kitchen space. These proportions were developed by analyzing the plans of dozens of well-run restaurants here in the United States and determining how much space they gave to each major function. While of course there was some variation in how these restaurants used space, for the most part, they broke down their kitchens in the manner illuminated in Table 1 on the opposite page.

These categories need a bit of explanation. Storage refers to not just dry food and walk-ins, but also to storage areas for dishware, paper goods, cleaning supplies, alcohol and other nonfood items that you’ll need to have on hand. Food preparation ar-



cas include rough prep as well as cold and hot food preparation and plating. Ware washing accounts for not only the dish machine and associated tabling, but also includes a three-compartment pot sink and handling space for soiled and clean cookware and service ware. Service and support is a catch-all category that includes server pickup and circulation, in-kitchen beverage stations, office space, janitorial closets, and employee restrooms or break areas.

How would these proportions be applied to our example, Akimbo? Given that our example restaurant is a casual bistro, you might start by applying the casual dining proportions from Table 1 to our total space estimate of 950 square feet, as illustrated in Table 2 on the right.

The menu, purchasing plans, and the small number of cooking staff at Akimbo together suggest that the space allocation for food preparation might be a bit high, whereas we'll probably need a bit more space for storage given our beverage program. So it might be advisable to take space away from food preparation and give

**Table 1**

	Storage	Food Preparation	Ware Washing	Service and Support
Casual Dining	25%	35%	15%	25%
Fine Dining	25%	40%	15%	20%
Quick Service	20%	35%	5%	40%

**Table 2**

Storage	= 25% x 950 square feet	= 240 square feet
Food Preparation	= 35% x 950 square feet	= 330 square feet
Ware Washing	= 15% x 950 square feet	= 140 square feet
Service and Support	= 25% x 950 square feet	= 240 square feet

it to storage. How much space to adjust is where the “art” comes into space planning: Knowing your operation well allows you to make better judgments about where each

square foot should be allocated. This kind of given-and-take is typical as you refine your operating plans and work with your architect to finalize the drawings.



## Using Space Wisely

One of the great things about space is that it is three-dimensional, and the wise restaurateur keeps that in mind when planning a kitchen. Tricks like putting up shelving over every prep table, using “low-boy” refrigerators as prep surfaces, stacking cooking equipment where feasible, and using space under prep tables to store nonfood items are all effective ways to get the most out of your square footage. Some equipment is designed to hang on the wall, such as salad greens dispensers. Others, like combination oven-steamers or restaurant ranges, are designed to be multipurpose, saving you space as well as upfront costs: shortening your cooking line by a few feet can result in real savings on your ventilation hood. Refrigerated drawers underneath countertop cooking equipment have become much better at holding temperature and are a great way to speed production while saving space. Another space saver can be the lowly garbage can: Choose ones that can be fitted onto a dolly and that will slide neatly under tabling when not in use, freeing up room for aisles.

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Speaking of aisles, the right aisle width can make all the difference to your productivity and effective use of space. The aisle between the cooking line and your chef’s table or serve-out counter should be about 3 feet (0.9 m) wide. Much more than this and your line cooks will need to take extra steps every time they turn around to plate an item, and much less than this will result in cramped quarters that will make production difficult and increase the potential for

accidents. Where employees work back to back, aisles can widen to 4 feet (1.2 m) or more, depending on the nature of the work and whether they work in a traffic aisle. Aisles inside storage rooms can get a little tighter, but less than 2 feet 6 inches (0.75 m) makes manhandling boxes more difficult and cart usage almost impossible.

Lastly, make sure to leave plenty of room around air-cooled equipment like ice machines and refrigerators so that they can run more efficiently and be less likely to fail when things get busy. Manufacturers’ brochures for these items, often available online, will tell you how much clearance to leave around compressor housings and air intakes for ideal operation.

## The Right Space Makes All the Difference

With commercial rents climbing in many areas, it makes sense to only pay for the back-of-house that you need and to have enough kitchen space to generate the revenues you want. A kitchen that is even as little as 5 percent too large ends up costing you thousands of dollars in occupancy costs, to say nothing of your heating and cleaning bills. That coupled with the challenges that too small or too big a space can present makes determining the right size for your kitchen all the more important.

As you can see, there are a lot of decisions that you’ll need to make early on to ensure that you end up with a workable kitchen space. As you work through your operational plans, write them down so that you’ll have a record of why you made your space decisions, because it’s not uncommon for you to have to make adjustments as your restaurant project develops and it’s ideal to have something to refer to as you decide where to make changes.

Of course, working out space needs isn’t all there is to kitchen planning, but it’s the first step in ensuring that you have a facility that allows you to serve your guests the way you want to serve them at a cost that works for your budget. That blend of science, art and planning that goes into sizing the back-of-house combines to help make your operation a joy to work in and a profitable engine for your business.