Fundamentals of Outdoor Kitchen Design

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Fundamentals of Outdoor Kitchen Design

Presented By: Whirlpool Corporation
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Description: Provides an overview of outdoor kitchen design principles and considerations and includes discussions on kitchen planning, materials, appliances, hearths, lighting, and shelters.

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Learning Objectives

At the end of this program, participants will be able to:

- identify the design and planning issues that must be considered before starting an outdoor kitchen building project
- list the types of materials available for outdoor cabinets, countertops, and flooring, and discuss the pros and cons of each option
- choose the appropriate outdoor appliances based upon budget, available space, materials, and client needs, and
- incorporate lighting, hearths, and shelters as both functional and decorative design elements of the outdoor space.

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Planning and Design

Design Considerations

Current trends indicate that people are spending less of their savings on vacations and more time and money on home improvements. Whether it be at their home or cottage, people are investing in outdoor living spaces as an extension of their home—a place to cook, dine, gather, swim, or entertain.

“Backyard barbecues have come a long way since early charcoal blazers and hibachis became popular in the 1950s. These once simple grills have evolved into high tech appliances designed to expand the kitchen into adjacent patio and garden areas. As part of our living area, the ‘great outdoors’ helps us find respite from our hectic and harried lives. It is a way for family members and friends to feel connected to nature’s beauty without having to jump on a jet plane or pull out into traffic to get somewhere. Gathering outdoors reminds us of simpler days: camping trips, family picnics and other outings. There also is a sense of romance and adventure outdoors: fire, wind, sun and stars. Flowers to enjoy, birds to be entertained by.”[1]

[1]Source: Cheever, Ellen, CMKBD, ASID, CAPS. “The Outdoor Kitchen.” 2011 Kasmar Article.

Design Considerations

Key questions to ask your client when planning the outdoor kitchen include:

- What is the budget?
- Where will the kitchen be located—remotely or attached?
- Who is the cook and how many cooks will there be?
- What types of food will be prepared?
- Will the meals be enjoyed outdoors?
- Will the kitchen serve a few or many?
- What other kinds of activities will take place near the outdoor kitchen?

Source: Cheever, Ellen, CMKBD, ASID, CAPS. “The Outdoor Kitchen.” 2011 Kasmar Article.

Design Considerations: Budget

The design of an outdoor kitchen is limited only by an individual's creativity and budget. The kitchen can be an elaborate room encompassing cooking, dining, and entertainment areas, or it may simply include an island for outdoor cooking convenience.

The best approach to take when designing an outdoor kitchen is to make a list of everything that is desired to be a part of the space, see what the budget will accommodate, then prioritize the elements to be included. Keep in mind that it is not necessary to include everything at once as long as the plan is designed to take into account possible expansion at a later date.

For budgets of any size (modest or extravagant), it is advantageous to plan the entire outdoor entertaining space as part of a single functional plan, even if one is not prepared to execute the entire plan at once. Cooking areas, dining areas, gardens, pools, and media areas all have to coexist, and it is important to consider the traffic flow between these areas as part of the original design. This will save on costly remodels at a later date when new elements are added.

Design Considerations: Location

Many factors come into play when choosing the optimal location for an outdoor kitchen.

Size

One of the first elements that needs to be considered is the size of the space available for the outdoor kitchen. The limiting factor of any design besides budget is the amount of space available. Small, tight spaces require focused planning of key elements, while larger spaces offer the luxury of the inclusion of more elements and area between them.

Size of the outdoor kitchen will also be affected by the number of cooks and the type of cooking planned in the kitchen. Outdoor kitchens range from a simple patio cooking center for the lone chef to a fully functional kitchen for several people to work in.

The type of foods that will be prepared will also impact the size of the outdoor kitchen. Grilling and barbecuing are traditional outdoor cooking events; however, today outdoor cooks are making pizzas, baking bread, grilling vegetables or cooking with side burners and using many pieces of equipment.

Source: Cheever, Ellen, CMKBD, ASID, CAPS. “The Outdoor Kitchen.” 2011 Kasmar Article.

Design Considerations: Location

Proximity to House

Verify that local codes do not dictate the location where outdoor kitchens can be placed. Your client may desire a kitchen that is convenient to the house and its utilities, or they may desire a completely independent location. Both options create interesting design challenges.

An Attached Outdoor Kitchen Location

Locating the outdoor kitchen close to the house is the easiest to install mechanically, and will provide the best access to indoor bathroom facilities and the indoor kitchen. If this is the plan, make sure any attached overhead structural elements echo the architectural details and shape of your home. The grill may need a hood to exhaust smoke and grease from the area.

Source: Cheever, Ellen, CMKBD, ASID, CAPS. “The Outdoor Kitchen.” 2011 Kasmar Article.

Design Considerations: Location

A Remote Outdoor Kitchen Location

A remote kitchen location can become more of a “destination.” More organic in focus, it is connected to the landscape, not the home structure. It offers family members and visitors a departure point—a resort-at-home feeling, rather than an extension of the indoor living spaces. When considering a location, think carefully about the distance from the indoor kitchen to the remote location. Do not forget to think about how accessible bathroom facilities will be.

One of the most important considerations for a remote location is, will there be steps leading to the site?

Steps lead to accidents, so their design is carefully regulated by building codes.

Source: Cheever, Ellen, CMKBD, ASID, CAPS. “The Outdoor Kitchen.” 2011 Kasmar Article.

Design Considerations: Location

Electrical, Water, and Gas Supply

Locate the outdoor kitchen elements to take advantage of existing electrical, water and gas supplies of the home. The home's services will feed the outdoor kitchen, and proper planning can make for more economical installations. Electricity will be needed to power lights, appliances, media/entertainment areas and other accessories. Outdoor outlets require ground-fault circuit interrupters. Check codes for sinks, as hot water may have to drain to a sewer line. Hot water lines must be installed and insulated. Cold water used only for the sink can drain to an existing drainage system. When installing an outdoor faucet in an area that experiences low temperatures, make sure drain pipes have a release valve to avoid bursting pipes. Natural gas lines may be required for built-in grills.

Local Codes and Permits

Speak to a building inspector and check the local codes for regulations on burying electric cable and gas lines. In some geographic locations, the two must be buried in separate trenches, though other areas require only that the two be separated. It is also important to check local building and fire safety codes. Zoning laws may restrict the size and location of the kitchen. Check local fire codes which dictate the clearance requirements between an open flame and a combustible surface.

Design Considerations: Location

Eating Areas

If dining outside is part of the plan, do not forget insect control! In some areas, dining is best located in a screened enclosure close to the grilling area. For other areas of the country, an outdoor eating area is completely alfresco. The outdoor gathering/dining space can be protected with a “bug machine”—just make sure you understand the sound inherent in this type of insect control system.

Next, study the wind patterns in the proposed gathering/dining space. Wind gusts can wreak havoc on your dinner party, driving guests inside, or spreading smoke from the grill across your table area.

The location must also be safe for visitors. In an outdoor area that will be used by family members of all ages, think about protecting little ones from the hot grill. Perhaps creating a U-shaped workstation for the cook with seating on the opposite side may be the best solution to keep racing youngsters out of the cook’s work centers and travel path.

Source: Cheever, Ellen, CMKBD, ASID, CAPS. “The Outdoor Kitchen.” 2011 Kasmar Article.

Design Considerations: Location

Expansion/Portability

Is the kitchen going to be permanent or is flexibility desired so modifications can easily be made to the layout? Islands can be built as permanent features or they can be portable. Grills may be built-in or freestanding. When choosing from the options available, keep in mind how the initial configuration will allow for expansion at a later date should that be something that is desired. Expansions could include more counter and storage space, other accessories such as a wood-burning pizza oven or smoker or more appliances.

Design Considerations: Location

Seasonal Use/Frequency

Consider how much cooking is to be done outside. If the kitchen will be used infrequently, a basic kitchen area and design plan is all that is needed. If the outdoor kitchen is going to be used often with family and friends for dinners and entertaining, then a larger space with a more elaborate plan will be required. If the kitchen is to be used year-round, the seating should be weather-resistant.

Weather Issues

The placement and design of an outdoor kitchen is also influenced by local weather patterns such as wind, rain, and humidity. Geographical areas subject to weather extremes should consider a sheltered design for protection from both the hot and cold weather extremes. Warm, tropical-type climate zones will be able to use their kitchens year-round and should consider a northern exposure for shade if possible. Locations that vary in terms of weather, but generally have a temperate climate with low levels of humidity, can opt for a large kitchen with a southern exposure. Southern and western exposures work best for zones that have shorter outdoor seasons; it may be best to opt for a smaller design as well.

Design Considerations: Location

Existing Patio or Deck

Before starting a plan, see if existing elements in the backyard space can be incorporated into the design to avoid unnecessary expenses or costly repairs at a later date. Consult a construction expert to determine if the deck or patio has the support necessary to withstand the weight of the outdoor kitchen needs. Safety needs to be a priority.

- **Patio:** Many outdoor spaces are already furnished with a patio that will serve as a strong foundation for any outdoor kitchen, especially if it is made of level concrete or stone. No structural modifications are required to accommodate a grill, cooking island, etc.
- **Deck:** Decks are usually made of wood or even plastic materials; they are not usually made of the same concrete or sturdy material as patios. It is quite likely a deck will need additional support to allow for larger designs that include multiple elements such as islands, built-in grills, fixed seating, and decorative items like planters.

Design Considerations: Island

The outdoor kitchen island is often the cornerstone of the design plan, and budget will certainly come into play when choosing a kitchen island.

For those with a larger budget, custom designs can be a creative option.

Custom outdoor kitchen islands can be:

- coordinated with the appearance of the home for a cohesive look
- built off site or built on site if permanence is desired, and
- custom made to specifications, meeting individual needs and desires.

For those with a more limited budget, prefabricated islands are more affordable options.

Prefabricated outdoor kitchen islands offer:

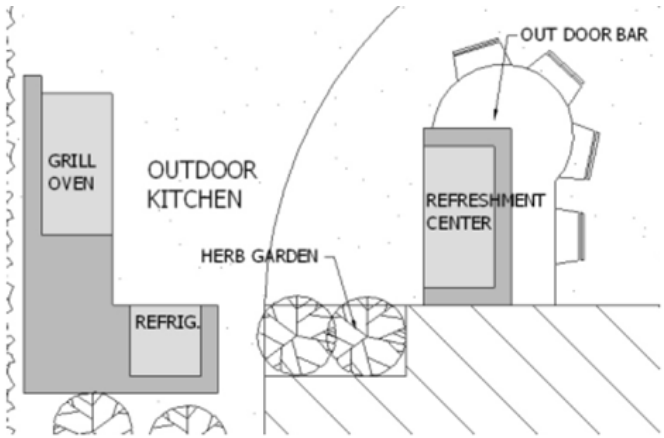
- easy installations that can be pieced together
- reasonably priced options
- many design styles, materials, and color choices to blend with the overall design, and
- numerous options for personalization.

Layouts

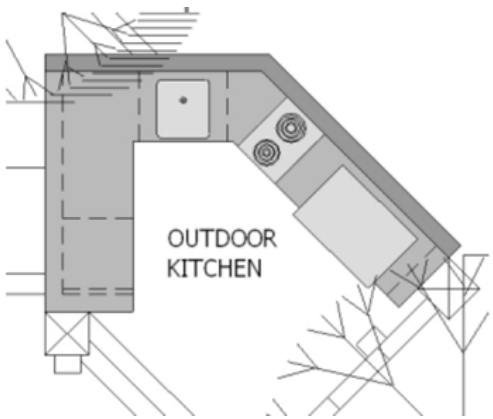
The kitchen layout chosen will depend on the space available, the desired traffic flow, and the elements chosen to be a part of the overall design plan.

Typically, the three most common layout designs for an outdoor kitchen island are:

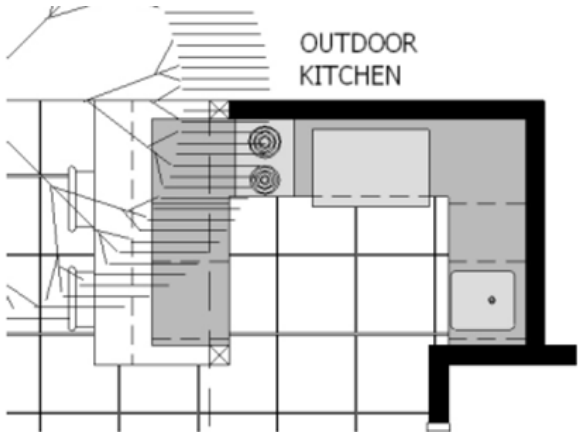
- Galley
- L-shaped
- U-shaped



Galley/L-shaped



Modified L-shaped



U-shaped

Layouts: Galley-style

Galley-style kitchens can range from the most basic of layouts to incorporation into large, expansive living spaces. Typically, these layouts are located along a wall or fence.

In basic versions of the galley kitchen, a grill, limited counter, and storage space are often accommodated. Often these kitchens are made of free-standing elements. This layout is suited for the rare/occasional outdoor cook or those with a small space to work.

Expansive kitchens that incorporate galley-styles will include the cooking/preparing area along a wall or fence with an island feature across (parallel). The galley island will typically include refreshment centers and seating.

Galley/L-shaped

Layouts: L-shaped

Another common outdoor kitchen layout is an L-shaped island that has more space for cooking and food preparation.

This layout is ideal for the fairly frequent outdoor cook who is looking for separate spaces for cooking and preparation. In general, a grill and some under-counter storage are available at the base of the 'L,' while the vertical side is dedicated to counter space. This counter space is often elevated to accommodate stool seating. The L-shaped configuration allows for multiple persons to be in the cooking and prep areas and allows the chef to interact more readily with guests.

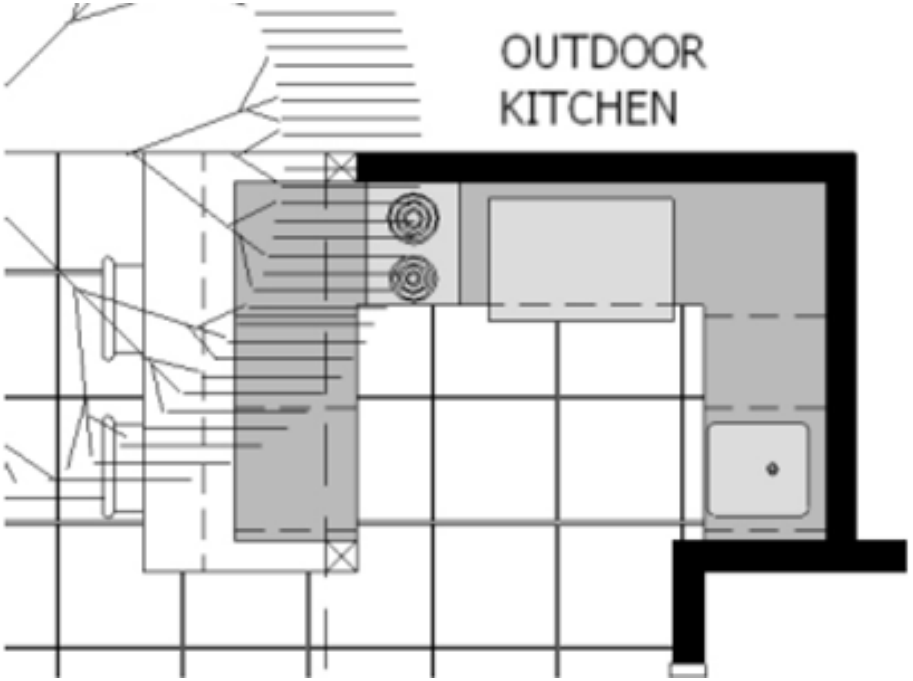
Modified L-shaped

Layouts: U-shaped

The U-shaped kitchen island provides distinct areas for cooking, preparing and eating food and is the most common for outdoor cooking professionals.

The design keeps children and traffic away from the grill area. Food is served directly from the grill to the dining area, which means the guests can eat and converse with the cook, keeping the cook a part of the festivities.

This layout also allows for the inclusion of more elements and accessories such as side burners, smokers, warming drawers etc…



U-shaped

Layouts: Zones

The Work Triangle

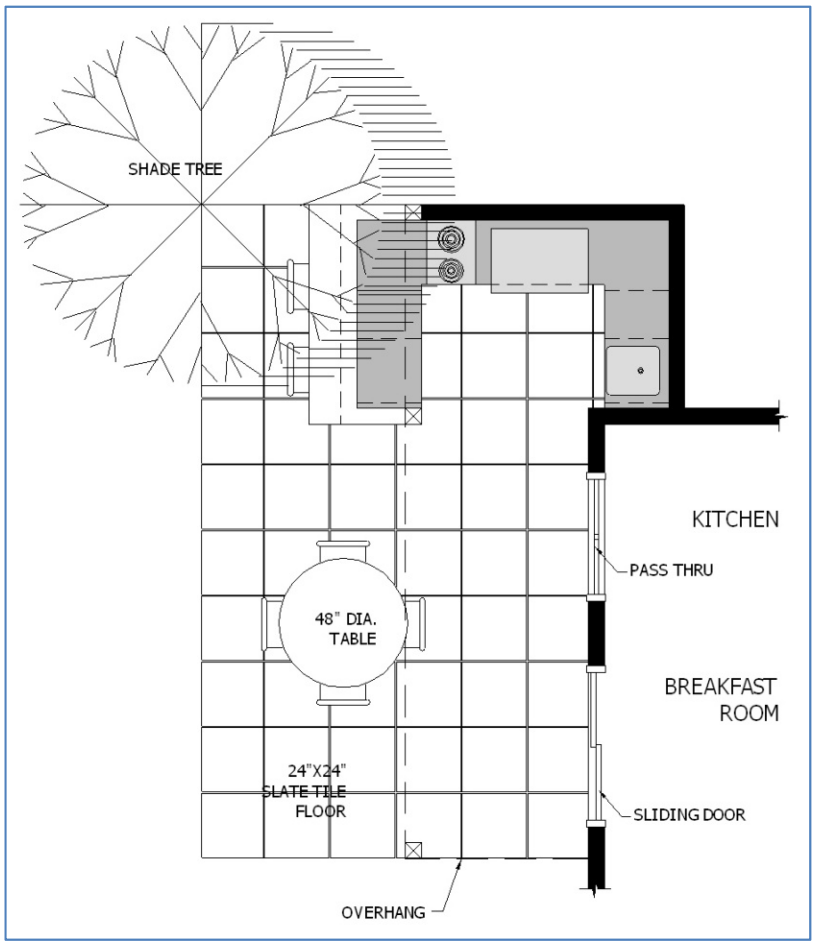
Traditional kitchen design works in outdoor kitchens. Where possible, the cooking area, food storage area, and clean-up area should each be at a point in the triangle which allows multiple people to work efficiently within the kitchen space.

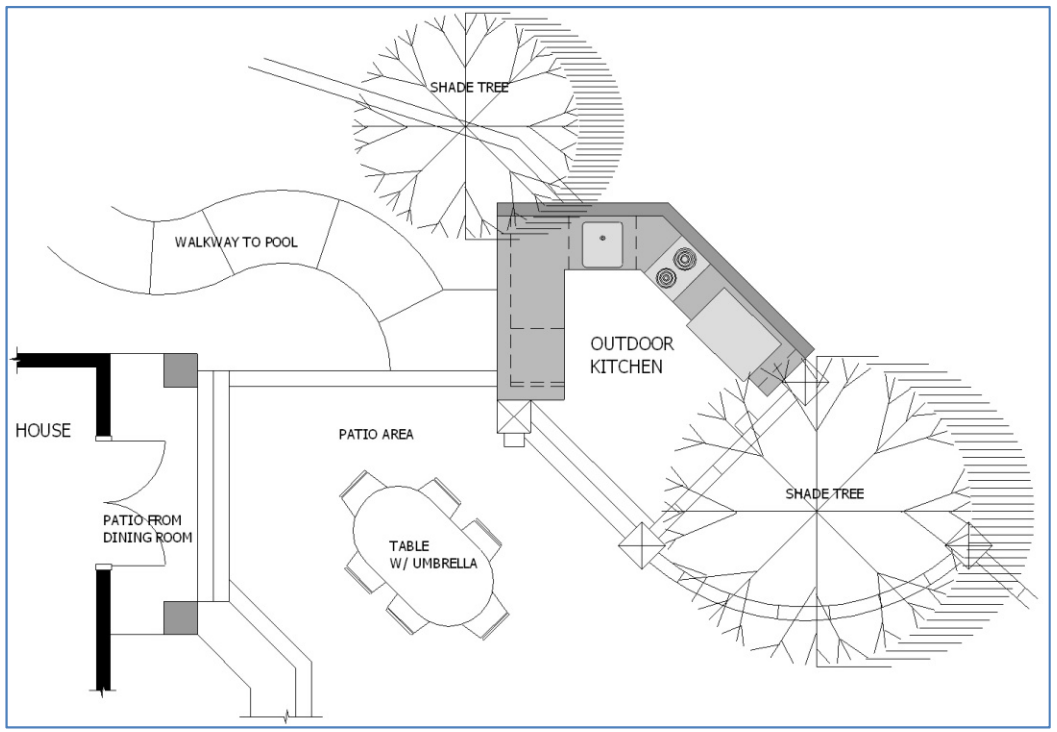
Typical zones found in the outdoor kitchen include:

- **Preparation/Serve – Dry**
  - near the cooking area and close to guests (warming drawers, garnish center)
- **Preparation/Clean-up – Wet**
  - near cooking area to transfer food quickly (sinks, trash bins, cutting boards)
- **Cook/Hot**
  - storage, cooking applications and ventilation (grills, burners, drawers, fuel tanks)
- **Refrigeration/Cold**
  - away from cooking and heat (refrigerator, ice machines, blenders, dispensers)

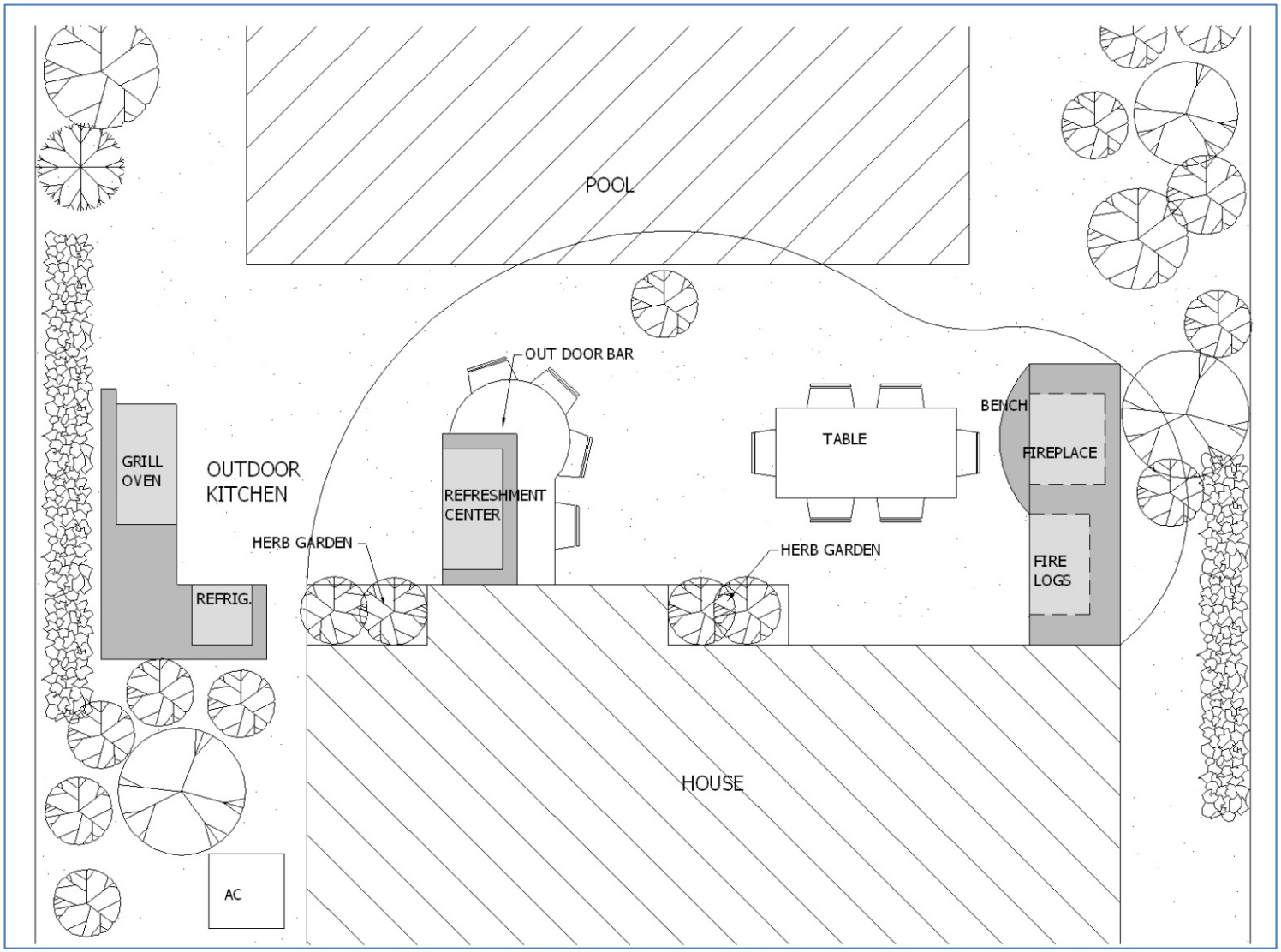
Layouts: Outdoor Living

The kitchen is only one element of the outdoor living experience. Consider how it interacts with the house, the landscape, and traffic patterns.





Layouts: Outdoor Living



Grill Placement

In general, grills have cooking areas from 24" to about 48" wide and 15" to 26" deep. The addition of a side burner can add another foot to the width. The grill should be at the heart of the whole kitchen area, with items surrounding it easy to reach, i.e. sinks, refrigerators, hooks for utensils, and storage. Place the grill so smoke blows away from people eating.

Address safety issues such as a shut-off valve for the grill, have a fire extinguisher readily available and follow building codes in terms of ventilation for the grill. Keep the grill far enough from the home to avoid smoke or heat damage.

Counter Sizing

A good rule of thumb is to allow for 16" between each accessory or appliance on the counter. Use the list of grill size, appliances, and accessories to calculate how much space is required for the counter.

Industry standard heights should be followed in the outdoor kitchen design. Countertop standard height is 36" tall, but occasionally it may be necessary to raise heights to 38" to accommodate a fridge. The most comfortable range is 36" - 38".

Bar serve counter height varies from 42" - 46" tall. Select stools ahead of time and let the height of the stool determine your final bar counter height. A typical stool is 28" tall, but this varies depending on the style and manufacturer.

Seating Areas

Outdoor seating can consist of any of the following, alone or in combination: a dining table and chairs, bistro table and chairs, bar chairs, picnic tables, benches, hammocks, and a living room style area with comfortable furniture and a low table. The type of seating is usually determined by function and the space available. Creating several seating areas gives the feel of a more expansive deck or patio. Always purchase outdoor furniture that is durable, easy to clean, easy to move and maintain and, as mentioned earlier, try to place any dining/seating area away from the heat and smoke of the grill.

Seating Areas

Dining tables typically range from 42" x 42" models to 96" x 42" models. Guidelines dictate allowing at least three to four feet between the edge of the table and a wall, deck railing, or other fixed object, and tables should be kept at least five feet away from any stairs. When eating at an island countertop, allow for two feet of counter space width for every stool and a minimum of 15" for knee clearance below the surface.

Seating is not just limited to the dining experience. It is common to see fireplaces, plasma televisions, and wired sound systems included in backyard designs. In a lounging or seating area, each chair or lounge (normally 36" x 36" square for a chair) should have 18" to 24" of clearance in front of it and between adjacent chairs. For a comfortable walkway, plan 48" to 60" between fixed elements in your space. Bringing the living room outdoors increases the entertainment value of the outdoor space.

Special Design Considerations

Include an under-counter open shelf or a dual-level island so the cook can stash dirty plates until someone's ready to carry them inside.

Plan a cutout in the countertop to house restaurant-style condiment trays; they can be filled in the kitchen and then installed in the counter for buffet service.

Include a cart to move things from the inside to outside.

Build in a trash drawer or tilt-out receptor into the grilling area and the refreshment area so there's no free-standing trash container. For critter control, the garbage container needs to have a tightly fitted lid and be removed immediately.

Make sure there are hooks or bars for oversized grilling equipment, pot holders, foil which may be used for covering or holding food at temperature, a recessed enclosure for paper towels and a bar for fabric washcloths or towels.

Source: Cheever, Ellen, CMKBD, ASID, CAPS. "The Outdoor Kitchen." 2011 Kasmar Article.

Special Design Considerations

Include a spot for equipment covers to be stashed when the outdoor kitchen appliances are in use.

Plan a space for a fire extinguisher handy to the grill.

Realize that refreshments are an integral part of the grilling and dining alfresco experience. This is an excellent place to use one of the free-standing bar carts. A built-in ice chest drawer, ice maker or refrigerated beverage center can also be an important part of an outdoor gathering space.

Don’t forget about party drinks—they are part of the fun; you will need to plan storage for the blender and the necessary electrical power.

Source: Cheever, Ellen, CMKBD, ASID, CAPS. “The Outdoor Kitchen.” 2011 Kasmar Article.

Material Selection

Overview

When designing an outdoor living space, it is crucial to carefully select the materials that will be used. All kitchen elements from the grill, to the sink and faucet, to the countertops will be exposed to various outdoor climatic conditions. It is important to invest in low-maintenance materials and equipment that will stand up to the weather conditions they will be subjected to. It is best to seek the advice of design professionals and to check the manufacturer product warranties before making the final decision.

Homeowners/designers should be selecting materials that are corrosion-resistant, stain-resistant, UV-resistant, and easy to keep sanitary. The less work the homeowners have to do to maintain the kitchen, the more they will use and enjoy the space.

Countertops

Concrete

In most outdoor kitchen applications, concrete countertops are cast in one piece, which means that there are no seams or grout lines, and they can be customized to accommodate almost any shape.

Concrete can be dyed, and therefore there is virtually a limitless range of colors to choose from. As the concrete cures over a period of months, it is likely the color will fade a few shades, so choose a shade or two darker than desired. Various aggregates can be added to the concrete to customize the look even further.

Concrete is durable and easy to maintain and when properly sealed, a concrete countertop is easy to wipe clean and resistant to UV damage, stains and scratches. The concrete countertop will require periodic waxing and sealing. Concrete is the only material that allows a sink to be integrally cast as part of the countertop.

Countertops

Tile

Ceramic and porcelain tile are also popular choices for outdoor countertops. However, it is important to note that when ceramic tile chips, the base color of the tile shows through; but with porcelain tile the color is consistent throughout, so if it chips, the same color is revealed. Tiles are available in a large array of colors. Tile is less durable than concrete or granite, but outdoor-rated tiles should stand up fairly well.

The main issues that develop with tiles are due to the grout and setting materials. In colder climates, freezing can destroy grout. It can occur between the tile and the setting material which loosens the tiles. It is best to use larger tiles to reduce the number of grout lines. In addition, even after proper sealing, grout is difficult to clean and keep clean, so consider choosing a darker grout color. Because it is difficult to keep the grout sanitary, it may not be the best choice for food preparation areas.

Countertops

Stainless Steel

Stainless steel is easy to clean and maintain but will show wear after continuous exposure to outdoor elements. When exposed to direct sunlight, the surface will become hot and will be highly reflective as well. This will not be an issue if the countertop is covered or shaded or if the temperature is moderate. Stainless steel countertops require skilled labor to build and are costly; however, their durability make them a cost-effective choice in the long term.

Stainless steel countertops are not easily damaged by heat. Stainless steel also has anti-bacterial properties and therefore helps reduce the build-up of germs. Maintenance includes a simple wipe with a slightly damp cloth. Stubborn smudges can be dealt with by using vinegar and baking soda, which will restore the steel countertop to its former shine. Stainless steel, though very durable, will scratch so this should be kept in mind where food prep and other abrasive activities occur.

Countertops

Natural Stone

Granite is also a popular material suitable for outdoor kitchen countertops; it creates a more elegant, “expensive” look. Depending on the size of the countertop, there may be a seam, but there are none of the grout or adhesive issues commonly related to the use of tile.

Granite is a costly choice, and it may be best to use it in a covered space to protect the investment made in the material. Constant exposure to direct sunlight may cause some of the lighter colors of granite to discolor over time. In terms of maintenance, granite does need to be sealed, with lighter colors demanding more frequent sealing.

Slate, soapstone, travertine, and marble are other common stone countertop materials. The harder the stone, the better it will stand up to the outdoor elements. Most natural stone materials can be found in both slab and tile formats.

Cabinets

Polymer

Polymer (high density polyethylene) is a synthetic material—plastic that is not susceptible to rot, rust or other forms of deterioration. Its UV inhibitors resist fading and deterioration.

The polymer material used in outdoor kitchen cabinets is typically called “marine board” or “marine grade” polymer as it is often used in marine applications.

Stainless Steel

Stainless steel is often used for outdoor cabinets because the right grades (typically 304-stainless steel) are very resistant to corrosion and staining.

Stainless steel cabinets and doors are constructed either by cladding a core material with steel or by using the steel to form the cabinet’s structure.

Source: “Outdoor Kitchen Cabinets: Tough Furnishings for the Outdoor Kitchen.” *Home Style Choices.com*. http://www.home-style-choices.com/outdoor-kitchen-cabinets.html Accessed August 9, 2011.

Cabinets

Wood

Wood can be used for outdoor kitchen cabinets provided it's the right kind of wood and it's treated or finished properly. Teak, cypress, and Ipe are used in marine and outdoor applications and possess natural attributes that make them resistant to natural elements.

An oil or a water-seal treatment can be applied to some wood outdoor cabinets for additional protection.

Masonry

Masonry cabinets are built from either cement blocks or a metal frame that's covered in a decorative stone, brick, or stucco veneer. Masonry is typically used only for the cabinet structure and enclosure. Doors and drawers will be provided separately.

These are less "ready-made" than those made from other materials; however, there are companies that sell pre-made frames along with the necessary cement board ready for installation and finishing.

Source: "Outdoor Kitchen Cabinets: Tough Furnishings for the Outdoor Kitchen." *Home Style Choices.com*. http://www.home-style-choices.com/outdoor-kitchen-cabinets.html Accessed August 9, 2011.

Cabinets

Material	Pros	Cons
Polymer	• easy to clean—can be hosed down • no corrosion concerns provided attached hardware is corrosion-resistant • impervious to water/moisture • stain-resistant	• limited range of color options • doesn't have same rich look like wood • not very eco-friendly since it's made from petrochemicals
Stainless Steel	• offers the look of metal cabinets but in a non-corrosive material • matches many stainless steel outdoor appliances and gas grills for a uniform look	• hard to keep clean from fingerprints, oils, bird droppings if not coated with a protective finish • can get hot when exposed to direct sunlight • abrasive objects or tasks can scratch
Wood	• has a warm look similar to wood indoor cabinets • wood grain provides visual detail not found in polymer and steel cabinets • use species with weather-resistant properties such as cypress, teak and Ipe	• can fade depending on the type of wood and finish treatment (think of deck materials, outdoor furniture) • wood ultimately can break down over time but this time span is governed by type of wood, surface treatments and how well it's cared for
Masonry	• resistant to weather • provides a substantial "built-in" look	• not as easily installed as other cabinet types • exterior materials/veneers must be purchased in addition to the "skeleton" structure of the cabinets/island • typically custom built resulting in higher labor and cost for installation

Source: "Outdoor Kitchen Cabinets: Tough Furnishings for the Outdoor Kitchen." *Home Style Choices.com*. http://www.home-style-choices.com/outdoor-kitchen-cabinets.html Accessed August 9, 2011.

Cabinets

Key Points to Look for When Choosing Outdoor Cabinets

Adjustable Legs

- adjust their vertical position to accommodate ground variations

Optional Toe Kicks

- cover the legs under the cabinets
- more finished appearance

Exterior Trim Details

- more visual detail to dress up the cabinets
- fluted spacers and crown moldings

Accessibility Features

- options like roll-out trash bins and trays

Quality Hardware

- door hinges, drawer slides, connection pins and/or screws, handles and similar items should be made from quality materials not affected by the elements, i.e. stainless steel

Durable Construction

- durability in the design and material
- thicker grades of stainless steel resist denting
- polymer cabinets with 3/4" thick boxes are very durable

Source: “Outdoor Kitchen Cabinets: Tough Furnishings for the Outdoor Kitchen.” *Home Style Choices.com*. http://www.home-style-choices.com/outdoor-kitchen-cabinets.html Accessed August 9, 2011.

Flooring

Safety and budget are two key considerations when choosing flooring for an outdoor space. Glazed or porous flooring materials should be avoided as they are slippery when wet. Cost is determined by the type of material, its quality, and installation method.

Material	Pros	Cons
Brick	• weathers most climate changes well • easy to clean; slip-resistant	• can crack or chip easily • may require a special coating for longevity
Stone/Slate	• easy to clean; durable; slip-resistant • low maintenance; no need for polish • smooth finish; rich color options	• can be costly depending on the size of the area to be covered
Concrete	• easy to clean; durable; slip-resistant • low maintenance; no need for polish • smooth finish; rich color options; affordable	• colored concrete can fade depending on the amount of exposure to the elements
Tiles	• variety of colors and finishes • affordable	• can crack or chip easily • adequate (not great) slip resistance
Unhoned Travertine	• smooth, polished or rugged finish; rich color options • low maintenance; slip-resistant	• can be costly depending on the size of the area to be covered
Wood	• aesthetically pleasing warm look • use species with weather-resistant properties such as cypress, teak and Ipe	• can fade depending on the type of wood and finish • can break down over time—governed by type of wood, surface treatments and how well it's cared for
Synthetic Wood	• no cracking, rotting, or insect infestation • requires minimal maintenance; durable	• not as aesthetically pleasing as real wood

Appliances

Grills

The grill is the centerpiece of the outdoor kitchen and is not the place to skimp on quality. Cheap grills will burn out quickly and may require replacing which will cost more in the long run.

Outdoor grills come in both freestanding and built-in versions and are available in a variety of sizes with a variety of features and accessories. Unique features that are offered by some manufacturers include a flare management system that funnels grease away from the burners to dispel grease flare-ups while cooking. Some grills feature a system that ensures stable temperatures and even heat across the barbecue surface, and some feature a system that displays the current fuel level with a timer feedback and an automatic shutoff feature. An external temperature gauge and stainless steel grates are also convenient features to have. A hot-surface ignition feature ensures the grill is ready for cooking in no time.

Whichever grill you select, the outdoor chef needs plenty of open counter space to prepare food and to provide a holding area for the variety of items being simultaneously arranged or held before transferring to the table. Ellen Cheever, CMKBD, ASID, CAPS, recommends 36" of counter space on each side of the grill. The smallest space you should plan on is 18" of open space on each side of the grill.

Grills

Fuel choice will help determine the appropriate grill for your client. Do they desire a single fuel source or a dual fuel? If it is a gas grill, is a gas propane tank or a direct gas line (from the house) more desirable?

Terms to know when specifying a grill:

BTU – British Thermal Unit
BTU is the amount of heat needed to raise the temperature of 1 pound of water by 1˚F. This will indicate how much heat your grill is able to deliver.

NG – Natural Gas
NG is typically connected to the house and costs more up front, but the savings come with usage and there is no tank to refill.

LP – Propane Gas/Liquefied Propane
LP is sold in 20-pound tanks and costs less at set-up, but the tank will need to be refilled as needed.

Grills

Size

The size of the grill needed will be determined by how often the kitchen is used and the number of people being served. Large parties may require a cooking surface of 800 square inches while the average family should do fine with 350 square inches of cooking space.

Material

Stainless steel is generally the best material for grills; it doesn't rust and will last much longer than powder coated metal, and is easy to clean and maintain. It is best to select models made from at least 304-grade stainless steel, interior and exterior.

Ventilation

If the grill is going to be located under the eaves of a home or under a closed structure, a ventilation hood should be considered and may even be necessary depending on local building codes. "Because of the amount of smoke, airborne grease particulates and heat generated in outdoor cooking, these hoods are deeper than those specified for interior installations. Additionally, some of these appliances have heat sensors that automatically increase power if temperatures reach a certain level: a good safety factor for a highly sociable area such as an outdoor kitchen." (Source: Ellen Cheever)

Grill Accessories

A smoker box can lend distinctive flavor to food, enhancing grilled favorites with savory smoked flavor. Many models are designed for use with a built-in or freestanding barbecue. Simply soak wood chips or chunks and place them into this accessory that ventilates the wood chips for maximum flavor.

Grill cover accessories protect the barbecue grill from exposure to the elements when not in use. A grill cover not only extends the life of the investment, it cuts down on time spent maintaining the grill. Check with the grill manufacturer for covers for both freestanding and built-in models.

A vent hood can be installed over a built-in barbecue grill to ensure the outdoor kitchen is a smoke-free environment. Features can include halogen lights, easy to clean grease filters, and automatic on/off to prevent overheating.

Side Burners and Rotisserie Kits

Side burners are available with some freestanding grills and as stand-alone units for built-in applications. These units allow the cook to simmer a sauce, sauté vegetables, or boil rice while preparing the main course. Some models feature an inner burner ring and outer burner ring, stainless steel grates, and even wok rings. They are ready for operation with an LP tank, or a NG conversion kit can be installed.

Many grills come equipped with a rotisserie feature, but an add-on kit can be purchased as a simple way to add the rotisserie feature to a traditional grill. A rotisserie kit makes it easy to cook larger cuts of meat right on the barbecue grill—slow cook pot roast, chicken, turkey and more. A kit generally includes a mounting bracket, stainless steel spit rod, turning forks, electrical cords, and a motor.

Refrigerators

When selecting an outdoor refrigerator, be sure that the interior and exterior are 304-grade stainless steel; this is not only a sturdy choice, but a stylish one as well. An outdoor refrigerator should be UL approved for safety. This means that with the UL approved rating, a refrigerator would have a larger compressor and has wiring specifically designed for wet and difficult outdoor conditions. Additional features like insulated electrical terminals and a water-resistant thermostat provide high performance in various weather conditions.

Refrigerators can either be freestanding or built-in to a kitchen island. Many models come with removable shelving, utility drawers, interior lighting, and adjustable legs. Ice makers can often be integrated into refrigerator units.

Ice Makers

An ice maker in an outdoor kitchen keeps essentials for serving guests cool drinks close at hand. Some models produce up to 50 pounds of ice a day for mixing cocktails, filling beverage buckets, or filling an outdoor cooler. Again, weather-resistant 304-grade stainless steel is the best material choice for outdoor appliances.

Features of ice makers can include a hidden electronic thermostat, a lighted ice bin, a drop-down door for easy access, adjustable leveling legs, and a drain pump.

Warming Drawers

A warming drawer not only heats multiple dishes, it also offers a slow cook feature for roasting larger cuts of pork, poultry, and more. A drawer also keeps plates or napkins warm when hosting a dinner party outdoors. Stainless steel warming drawers are designed for built-in installations, and features can include commercial-style handles, a humidity control, and an exterior power indicator light that signals when the warming drawer is in use. Warming drawers may also be included in high-end freestanding grills.

Specialty Drawers and Access Doors

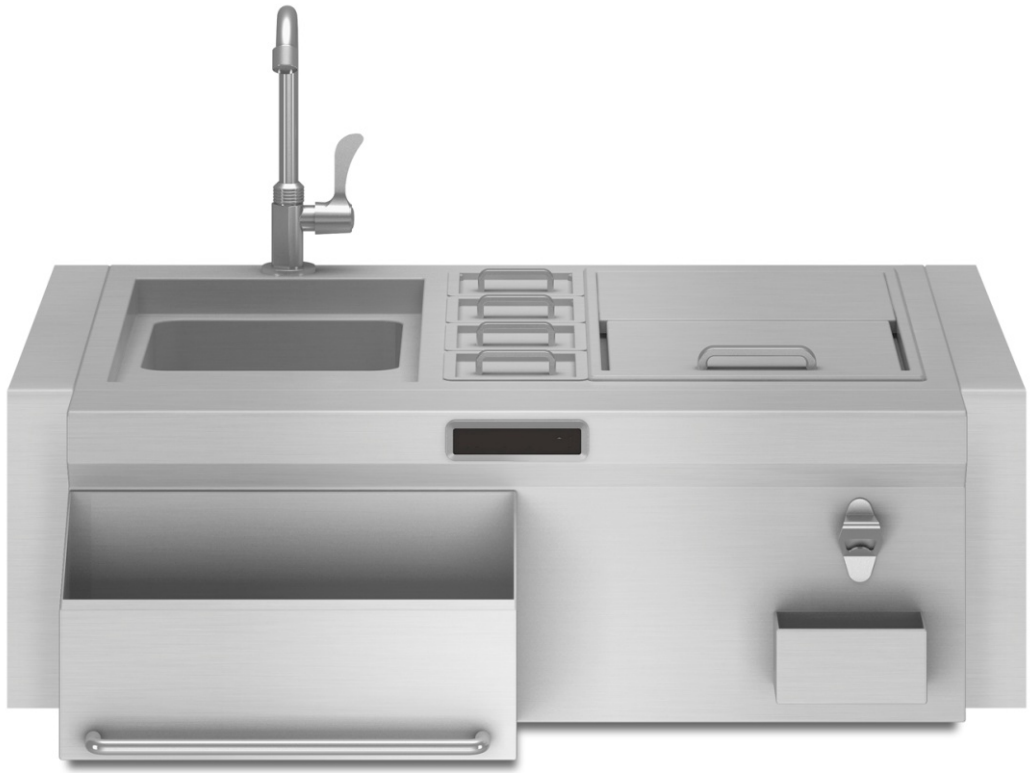
Trash bin installations are ideal for maintaining a clean grilling space. Look for a stainless steel unit with a fully-extendable drawer that rolls out smoothly on sturdy drawer glides and keeps scraps, paper towels, and other refuse stored out of sight.

Stainless steel utility drawers and access doors keep cooking tools, spices, fire starters, and other items conveniently near the barbecue grill.

Refreshment Centers

Refreshment center installations in an outdoor kitchen function much like a wet bar, and allow for chilling ingredients, rinsing fruits and vegetables, or simply cleaning up. These can be freestanding units or built-in units for a kitchen island.

Features of outdoor refreshment centers can include sinks, ice bins, faucets, drain boards, cutting boards, towel racks, bins for garnishes, and bottle cap openers and bins. In addition to the wet bar installation some manufacturers offer refreshment centers that include filtered water, ingredient storage and cutting boards.



Sinks and Faucets

A stainless steel utility sink installed in an outdoor kitchen can save on trips to the indoor kitchen. A utility sink is designed for cleaning glasses and stemware, rinsing produce, or washing dishes. A readily available water source makes it easier to keep surfaces clean as well. Sinks are available for either top-mount or under-mount installation. Features can include a built-in drain and stopper.

The sleek, curved design of a gooseneck faucet keeps it out of the way when working in the outdoor kitchen, and the design provides ample room in the sink for washing dishes and for food preparation. Stainless steel is the most weather-resistant material choice for an outdoor faucet. Stainless steel sinks and most faucets can be used in outdoor kitchens. For cold water, it is usually easy to tap into the water pipe that serves a nearby outdoor hose bib or faucet. For hot water, a supply pipe must be run from the barbecue sink to an existing hot water pipe or hot water heater. A much better idea is to install an “on demand” water heater. It can be installed under the sink, in many cases.

If you live in a climate with freezing temperatures, plan to winterize the area. Water pipes need to be designed so you can clear all water from the system in the fall. Water connections should be buried below the frost level. (Source: Ellen Cheever)

Controlling the Outdoor Living Space Temperature

Cooling

For cooling, an interesting option is a mister that works on the principle of evaporative cooling. That is, as the water evaporates, it lowers air and skin temperature. For example, residential misters create a fog of tiny, hair-thin droplets via strategically placed nozzles. As the droplets evaporate, the air temperature can drop up to 30˚ Fahrenheit. Be forewarned: These types of residential misters work best when the humidity is under 40%—adding more water in a high humidity area will only reduce the temperature 6˚ to 8˚ Fahrenheit.

Alternatively, installing ceiling-mounted or floor-mounted fans approved for exterior use will create the cooling effect of a soft breeze, again, reducing the perceived temperature. Fans also help keep bugs away. Look for a fan that is UL rated for wet locations as opposed to damp locations; the former has seals and grommets to prevent moisture from penetrating the motor and electrical elements, plastic weather-resistant blades and stainless steel hardware.

Source: Cheever, Ellen, CMKBD, ASID, CAPS. “The Outdoor Kitchen.” 2011 Kasmar Article.

Warming

In winter months, warming up the space may be your goal. The outdoor cooking and entertaining season can be extended with a gas patio heater. Many are available—the more expensive ones usually produce a wider circle of heated air around the vertical tower. For example, an 8'-high fixture can produce a 20' circle of heated air. There are models that use liquid propane gas, as well as those that can be connected to a natural gas line.

Fire pits or fireplaces are also a natural way to heat up the gathering part of your outdoor living area. The manufacturers of such fire-type appliances will have clearance requirements between the pit/fireplace and any nearby structure. For example, one gas fire pit manufacturer recommends a 3'-wide clearance and a 7' ceiling clearance around their fire feature.

Source: Cheever, Ellen, CMKBD, ASID, CAPS. “The Outdoor Kitchen.” 2011 Kasmar Article.

Considerations: Fireplace Location

A fireplace often becomes a focal point of a yard, so it is best to place it somewhere it won’t detract from other focal points or views. It will need to go in an area with lots of ventilation and a reasonable distance from flammable structures, buildings, and landscaping. Zoning regulations will dictate how close a fireplace can be to existing structures and property lines.

The fireplace can act as a privacy screen when the back faces the neighboring property. Take wind patterns into account and if possible, place the fireplace where it will act as a wind-break. Plan adequate seating space around the fireplace; small fireplaces should have at least a 12' x 12' seating area, and a large fireplace will require at least an 18' x 18' seating area.

Considerations: Portable or Permanent

The size of the space available and how much entertaining is done in the backyard will influence the choice of either a permanent or portable fireplace as well as the size of the fireplace. Local codes affect the placement of the fireplace and whether or not a burning permit is required. Some fireplaces can even double as a natural flame barbecue or grill.

A masonry fireplace can be built into the side of a home (where permitted), a kitchen island, or as a freestanding structure.

Portable fireplaces are popular and versatile. They can be moved around, stored away when not in use, or even taken camping. They are a good option when on a budget or when space is limited.

Please remember the **exam password PORTABLE.** You will be required to enter it in order to proceed with the on-line examination.

Portable Fireplaces: Materials

A portable fireplace or fire pit has legs that are to stand on stone, wet grass, or sand and keep the fire pit a safe distance off the ground. The bowl portion of the pit serves as the fire box. The fire pit should also have ash holes in the bottom that will remove the ash and give the fire access to air. The material chosen for the fireplace will determine how safe the fire pit is and how long it will last. For safety reasons alone, it is prudent to spend more money up front and have a pit that is safe and can be enjoyed for several years.

Material	Pros	Cons
Cast Aluminum	• long lifespan; does not rust • light; easy to move around	• store during winter to prevent damage
Cast Iron	• can stand a lot of abuse • painting required to slow rusting process	• heavy; difficult to move around
Sheet Metal	• inexpensive • light; easy to move around	• rust quickly; short lifespan • thin gauge metal may melt
Copper	• initial aesthetic appeal • affordable	• quickly turn green and rusty
Clay	• inexpensive	• short lifespan; can easily fall apart • should be placed on cement or baked clay

Permanent Fireplaces: Materials

Stone is ultimately the best material to use when constructing a permanent fireplace as it is able to stand up to severe climate conditions and heat from the fire. Stone is a very long-lasting, durable material and in terms of safety, it is the least fire-hazardous material available used for constructing fireplaces. With the variety of veneer options available, it is possible to create a fireplace from rugged and natural to elegant and refined, enabling it to complement the architectural style of the home.

Material	Pros	Cons
Brick Veneer	• authentic and timeless style • durable outdoors • will withstand heat from fire	• time-consuming installation • grout may crack over time • limited colors available
Stone Veneer	• natural and upscale style • durable and long-lasting • wide variety of earth tones	• high cost • installation can be complex and time-consuming • soot may show on stone veneer
Stucco Veneer	• most affordable facing option • simple and quick installation • a variety of color options	• not high-end decorative • may crack and flake
Concrete Veneer	• can mimic nearly any natural material • variety of color and texture options • durable outdoors	• prone to cracking at extreme temperatures

Source: Tate, Sarah. “Outdoor Fireplaces.” *LandscapingNetwork.com*. http://www.landscapingnetwork.com/outdoor-fireplace/ Accessed August 9, 2011.

Fuel Options

Fire Pits

- **Coal Burning**
  - Pros: puts off a lot of heat, good for barbeque or grill, less smoke than wood
  - Cons: lacks ambiance
- **Wood Burning**
  - Pros: natural ambiance, easy to maintain flame
  - Cons: smoke, need very dry wood to keep smoke issues at bay

Fireplace

- **Wood Burning**
  - Pros: puts off a lot of heat, natural ambiance, don't need to run a gas line
  - Cons: chimney, storage, safety concerns, hard to start, smoke, may be harder to get permits
- **Gas Burning**
  - Pros: easy to light, safer than wood, no chimney necessary, no smoke
  - Cons: produces less heat than wood, need to run a gas line, not authentic

Source: Tate, Sarah. "Outdoor Fireplaces." *LandscapingNetwork.com*. http://www.landscapingnetwork.com/outdoor-fireplace/ Accessed August 9, 2011.

Patio Heaters

Natural Gas/Propane Patio Heaters

Natural gas and propane patio heaters (deck or radiant heaters) take over where the sun leaves off, allowing you to enjoy more hours in comfort and warmth by the pool, spa, or on your deck. A good-sized heater will produce a 12' - 15' circle of gentle radiant heat. Patio heaters can be located anywhere. Post-mount, suspension, portable, and tabletop models are available. The units are equipped with refillable fuel tanks.

Natural gas patio heaters have elements that generate invisible infrared heat rays and then focus them down onto the ground and surrounding objects. The surrounding air is also warmed, but more slowly by convection from the warmed surfaces.

Available in a variety of styles, most units offer a range of heat with the use of a dial or remote control. This gives just the amount of heat needed and is more fuel-efficient. The use of a push button, spark ignition, rather than a pilot light, also contributes to the fuel efficiency of a unit, and eliminates the need for electric hook-ups. The units are easy to use and operate, safe around children, clean burning and environmentally friendly, and inexpensive to run.

Source: “Patio Heater.” *SaskEnergy*. http://www.saskenergy.com/residential/appliances/patioheater.asp. Accessed August 9, 2011.

Patio Heaters

Electric Heaters

A traditional electric patio heater looks similar to a gas/propane heater, but rather than using a propane gas bottle to generate its energy, it uses electricity with halogen elements.

Electricity is readily available and therefore is more convenient than gas units. However, if it is a large space that requires heating, gas is the more efficient choice as a very large electric heater would be required. At zero carbon emissions, electricity is also an environmentally friendly choice.

These are available as wall-mounted units as well as ceiling-mounted, which can free up valuable floor space when it is at a premium.

Electrical Needs for Outdoor Living: Lights and Power

Power Outlets

Do not forget about electrical wiring needed for power and lighting of the outdoor space.

Because outdoor wiring must withstand the elements, outdoor electrical materials are stronger and more resistant to corrosion than those used for indoor wiring. Additionally, because outdoor components must fit together tightly to prevent water from entering them, heavy-duty gaskets or special fittings often seal cover plates on electrical boxes.

When planning your electrical requirements, think about the following:

- An outlet for the electrical rotisserie or side burners included with your grill.
- An outlet for built-in refreshment appliances: the refrigerator, beer keg for example.
- Outlets available for a blender or other hand appliances that will be used in the outdoor space.
- An outlet and cable line for a television, a portable CD player or iPod docking station.

Source: Cheever, Ellen, CMKBD, ASID, CAPS. “The Outdoor Kitchen.” 2011 Kasmar Article.

Lighting

When used effectively, outdoor lighting is an economical way to have a dramatic effect on the overall backyard design. Lighting should provide ambiance and safety, allowing the cook and the guests to move about the space safely.

The lighting should be both functional and beautiful and should enhance the kitchen design, not overwhelm it. Whether illuminating the outdoor kitchen, garden, pool, dining area, or pathway, incorporate several different styles of lighting into one complementary design. Preview how the fixtures look in the daylight when they are not turned on, as well as how they look in the evening.

Lighting Considerations

In the article “7 Tips For Lighting Outdoor Kitchens,” Lauren Heist outlines lighting elements that should be considered during the planning stage of the outdoor kitchen.

Use Task Lighting Above the Grill

Task lighting should provide an unobstructed view of the cooking and food preparation areas. High-voltage true white light is best for viewing food.

Use Ceiling Fans

Fans can help control mosquitoes, other bugs, and smoke from the grill. They move the air to cool things down and add a layer of lighting to the overall design.

Use Lighting Rated for Wet or Damp Locations

If located under a solid roof, the light can be rated for damp locations. If the covering is slotted and the light is exposed to the elements, it must be rated for wet locations.

Source: Heist, Lauren. “7 Tips for Lighting Outdoor Kitchens.” *Residential Lighting Magazine*. ©2009. http://outdoorhomescapes.com/InTheNews/ResidentialLighting/residentiallighting.pdf Accessed August 9, 2011.

Lighting Considerations

Use Under-cabinet Lighting

Rope lighting and other lighting fixtures can be mounted to structural elements of a kitchen island to illuminate the cabinets, drawers etc…and to serve as a decorative element.

Use Dimmers

Dimmers should be used on all outdoor lights; this will allow the homeowner to set the mood depending on the time of day, weather conditions, and how each area is being used.

Use More Than One Circuit

It is best to use two or three 20-amp circuits with one dedicated to appliances and the other one or two circuits dedicated to lighting.

Balance Style vs. Substance

Choose light fixtures that won't obstruct views and will complement the home's architecture. Hanging lights tend to accumulate dirt and insect debris.

Source: Heist, Lauren. "7 Tips for Lighting Outdoor Kitchens." *Residential Lighting Magazine*. ©2009. http://outdoorhomescapes.com/InTheNews/ResidentialLighting/residentiallighting.pdf Accessed August 9, 2011.

Decorative Options

Floodlighting

Floodlights are highly versatile and are designed to illuminate wide areas for security. They can be mounted in the ground, on walls, or in trees. This type of lighting can often be unsightly, so it should be installed in an inconspicuous spot.

Surface Lighting

The primary benefit of this type of lighting is safety and utility. Lights typically mount on flat surfaces, such as walls or stair risers, creating an attractive evening ambience for outdoor gatherings. Although this lighting often assumes an inconspicuous look, some fixtures can be ornate.

Path Lighting

The primary purpose of this lighting is safety. Use it when you want to draw attention to steps or obstacles that might be overlooked. It is key to include this lighting for remotely located kitchen spaces. Path lighting comes in a wide range of styles, from standard black tier lights to elaborate fixtures.

Source: “Illuminate the Night.” *Outdoor Living*. http://www.outdoorlivingideas.com/outdoor_lighting/lighting_illuminate.html Accessed August 9, 2011.

Decorative Options

Uplighting

This type of lighting directs light upward to highlight landscape features such as trees. Well lights are recessed into the ground; place these lights behind shrubs for a natural look.

Downlighting

Also called moonlighting, this type of lighting is directed downward onto surfaces from trees, gazebos, or patios to illuminate the landscape. Overlap patterns to soften shadows.

Backlighting

Directed onto a surface from behind, this lighting is often used to highlight architectural features such as doors and windows. It is typically placed behind shrubs.

Spotlighting

Highlight special objects such as statues or specimen shrubs with spotlights. Mounting the lights overhead in pergolas or eaves will help eliminate glare. Ground-mounted fixtures should be hidden behind shrubs.

Source: “Illuminate the Night.” *Outdoor Living*. http://www.outdoorlivingideas.com/outdoor_lighting/lighting_illuminate.html Accessed August 9, 2011.

Shelter

Why Cover the Kitchen?

Regardless of where the kitchen is placed—adjacent to the house or remotely—planning an overhead structure or vertical enclosure to provide shade and protection, while not capturing smoke, is part of the planning process.

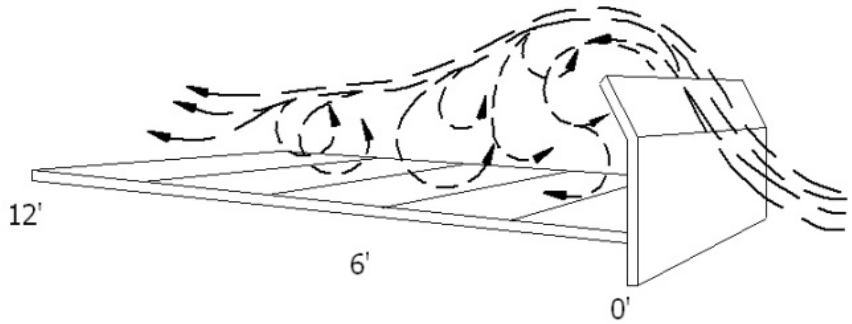
Do not rely on a tree as a natural cover for the grilling area: the tree will drop leaves and will not protect against bird droppings. Some type of overhead structure is a better solution. The overall look of such a structure should blend with existing exterior fencing and other structures on the property, and the styling should blend well with the house.

A covered area can accommodate ceiling fans and speakers, conceal night lighting fixtures, offer shade for guests, and be an architectural design feature that defines a space and provides a focal point.

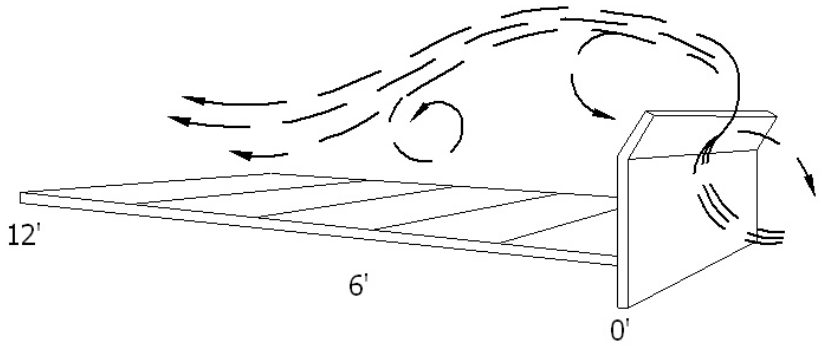
Before constructing a patio cover, check the local building codes because they may limit the location and size of patio covers.

Source: Cheever, Ellen, CMKBD, ASID, CAPS. “The Outdoor Kitchen.” 2011 Kasmar Article.

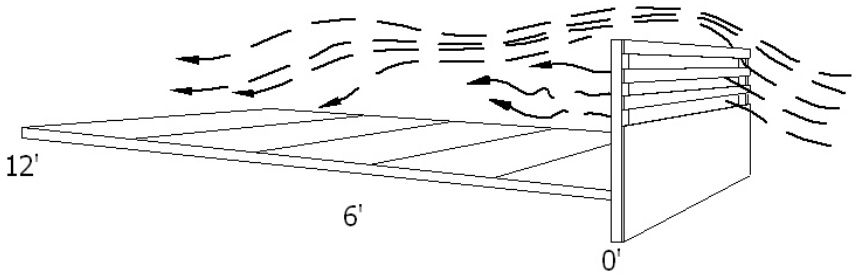
Vertical Shelters and Wind Flow



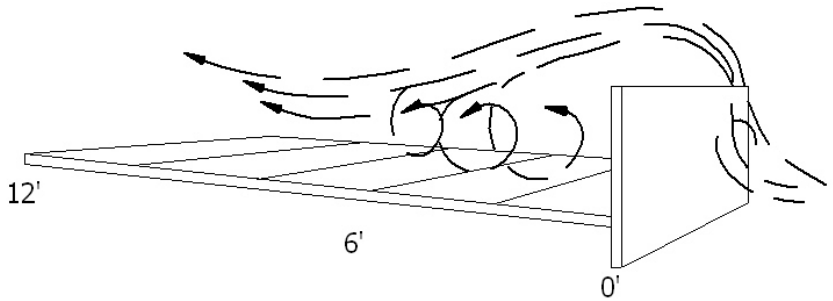
Solid Screen: Baffle angled toward the barbecue area.
Best protection up to 8 feet from a 6-foot high barrier.



Solid Barrier: Baffle angled into the wind.
Good protection near the barrier, to a distance twice the barrier's height.



Spaced-Wood Screen or Lattice:
Wind diffused near the screen.
Best protection 6 to 12 feet from the barrier.



Solid Vertical Barrier:
Protection drops off at a distance roughly equal to the barrier's height.

Types of Shelter: Umbrellas and Awnings

An umbrella is the simplest and least expensive way to add shelter to an outdoor kitchen. An umbrella can be freestanding, part of a dining set or kitchen island. Umbrellas can be postless (hung from an overhead structure), center posted (use the largest size possible so guests do not have to continually dodge the moving sun), or swing arm—those that eliminate a center structure. Additionally, retractable shades, shade sails (attached with cables to a building or trellis), canopies or shade cloth panels are available. (Source: Ellen Cheever)

An awning is a covering that is attached to the exterior wall of a building. Typically, an awning will be made of canvas woven of acrylic, cotton, or polyester yarn. It can also be made of vinyl laminated to polyester fabric that is stretched tightly over a light structure of aluminum, iron, or steel. Awnings made of aluminum are often used when wind and snow loads are a factor. Awnings are an affordable way to cover dining and cooking areas, but an awning made of a combustible material should never be place over a grill. The ability to retract an awning makes it a versatile and functional design element.

Types of Shelter: Pergolas and Ramadas

A pergola is a permanent or freestanding architectural feature that forms a shaded walkway, cooking, or sitting area. It is composed of vertical posts or pillars that support cross-beams and oftentimes will have a sturdy open lattice roof. Growing climbing plants on the pergola makes it a more dramatic feature and increases the shade it provides. A ramada is a pergola with a closed roof that can be shingled to match the roof of the home.

Traditional pergolas are constructed out of wood such as pressure-treated pine, cedar, redwood, and teak. These need to be stained and sealed and require maintenance. Aluminum or vinyl pergolas are easier to maintain and weather better than wood. Products are available that mimic the appearance, texture, and color of real wood, while offering a virtually maintenance-free pergola that is not susceptible to insect damage or rot.

Materials: Wood

The most important thing to consider when selecting wood is its outdoor durability; it must resist insect damage, rot, and weathering.

Pressure-treated pine, the most common and affordable option, is rot- and insect-resistant. It will need to be treated with a preservative after construction to slow the process of weathering. Pressure-treated pine can be stained nearly any color.

Cedar naturally resists warping, cracking, insects and moisture rot. It is strong, lightweight and easy to handle, and therefore is often the preferred patio cover wood of professional carpenters. Cedar takes stains well and can be painted.

More expensive wood options are redwood, oak, cypress, and teak.

Wood does require yearly maintenance. Depending on the finish chosen, it will need to be treated regularly to prevent insect infestations and weathering. To keep up the original appearance, painting and staining will need to be repeated. With proper maintenance, wood is a long-lasting and durable material.

Materials: Embossed Aluminum / Aluminum

Aluminum patio covers require little maintenance and are easy to install. Unlike some varieties of wood, aluminum will not rot or become infested with insects. An aluminum patio cover requires minimal upkeep and will provide a shady place to gather for many years. Embossed aluminum mimics the look and texture of natural wood; aluminum beams are embossed with an authentic wood grain texture.

These covers are available in many colors and can be freestanding or attached. They can also have a latticed or open roof. Other features, depending on the manufacturer, include gutters and downspouts, and recessed lighting.

Materials: Vinyl

Vinyl is very durable and requires very little maintenance, and therefore works well as an outdoor shelter material. Vinyl won't chip, warp, or rot, and it is resistant to insect damage and weathering; however, vinyl is prone to yellowing over time so check the manufacturer's warranty.

A vinyl shelter can be freestanding or attached, and is available in a variety of colors, sizes, and heights.

A quality vinyl patio cover will cost more than a wood cover. However, its longevity and the fact that little maintenance is required make it a sound investment that may even cost less in the long run. The best vinyl cover systems will have aluminum, wood, or steel support inserts. These ensure the structure will be both strong and stable. The more lightweight the insert material, the easier the installation will be.

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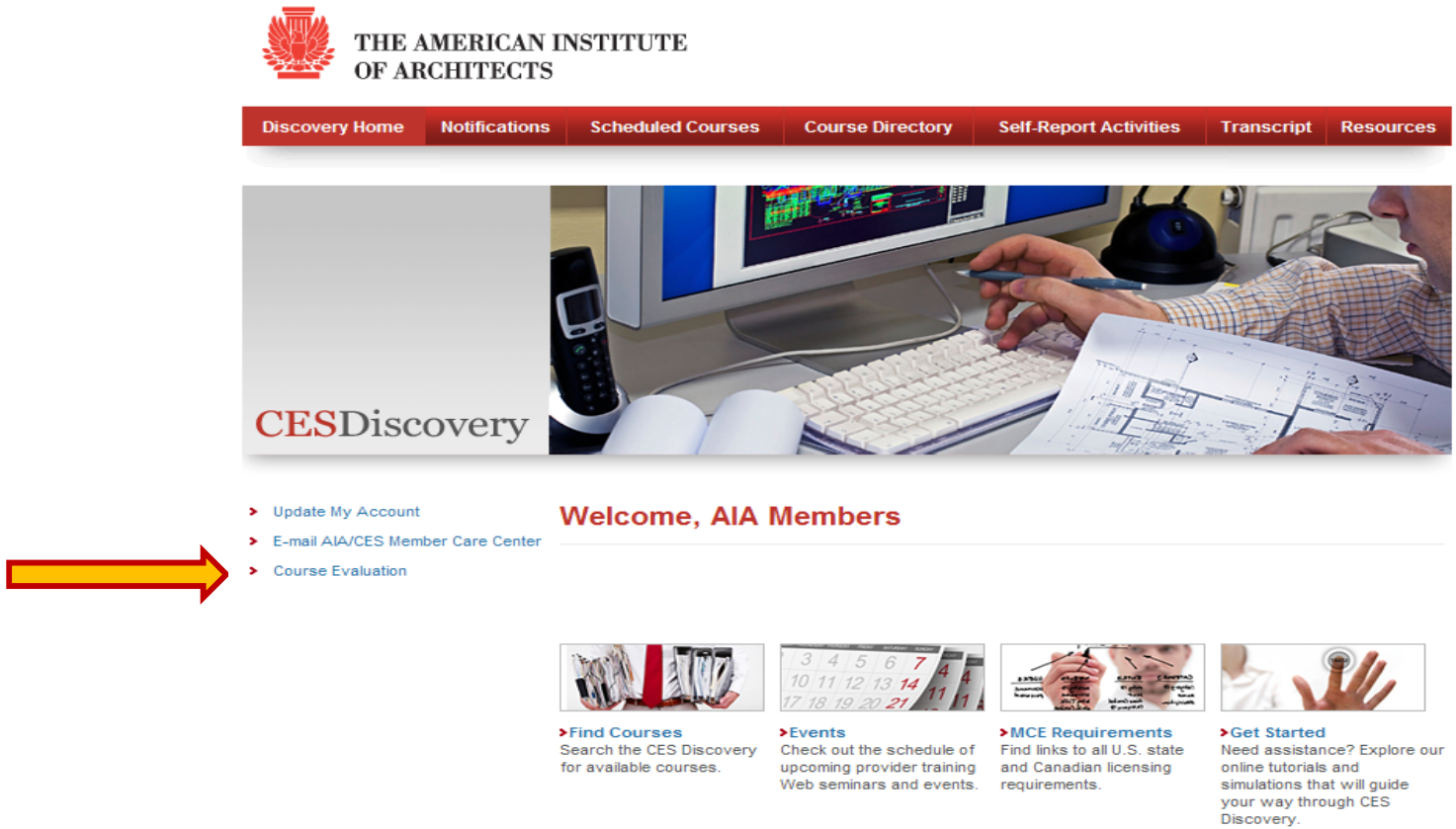

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