DESIGNING Kitchen Islands

Tips and tricks for fitting plumbing and electrical boxes in freestanding islands and peninsulas

C. BATES

by Michael Weiss and Stephen Jackiewicz

Designing and installing kitchen cabinets used to be routine. Counters were always the same height and appliances nearly always went against walls. Nowadays, clients want open floor plans, so features like islands and peninsulas are more popular. These freestanding cabinets create all kinds of difficulties: switches, electrical receptacles, and other devices that normally go in walls have to be mounted in the cabinets; water supply and drain pipes, plumbing vents, and heating ducts may have to be routed in unusual ways. None of these obstacles is insurmountable, but together they do make it harder to lay out and install kitchen cabinets.

Space is always at a premium in kitchens. Every pipe, box, and duct that goes into a cabinet takes up space the client wants to use for something else. Because casework is expensive and difficult to modify in the field, it pays to think through the details before you begin construction. As a GC, it's your job to coordinate all casework, plumbing, heating, lighting, wiring, and venting. Having a kitchen designer or an architect involved doesn't get you off the hook. Foul-ups may be someone else's fault, but they're *always* your problem.

Cabinet Construction

Unlike ready-made base cabinets, which usually come with toe kicks attached, the custom cabinets we build are installed on a separate base that's cleated and

Sturdy, Level Base

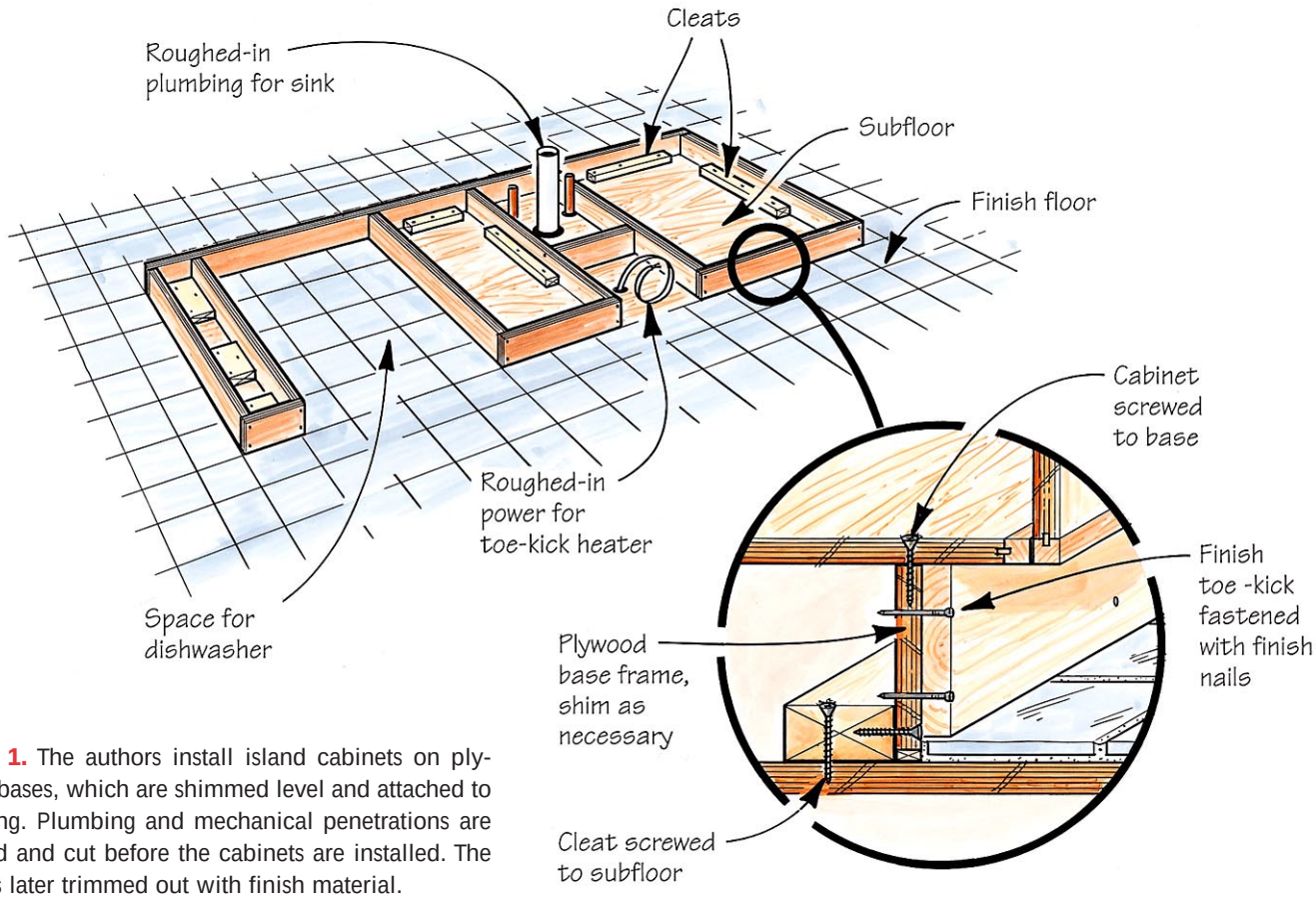

Figure 1. The authors install island cabinets on plywood bases, which are shimmed level and attached to blocking. Plumbing and mechanical penetrations are located and cut before the cabinets are installed. The base is later trimmed out with finish material.

screwed to the floor. Instead of attaching a number of cabinet boxes to the base and installing the whole thing as a unit, we think it's easier to level and install the base first, then screw cabinet boxes onto it (see Figure 1). Base frames made out of 2-by stock will work, but we like to use straighter, more stable materials like birch plywood. Frames should be sized to be trimmed with finish pieces after the cabinets are installed; otherwise, you'll have to protect the trim during other phases of construction.

When possible, we put the base frames in before pipes and ducts are brought up through the floor, which makes it easier for mechanical subs to locate rough-ins. Sometimes, we help the GC mark the locations where we would like the mechanicals to penetrate the floor. The idea is to avoid having to butcher cabinets in the field because a pipe or duct is in the way.

Electrical Boxes

With island cabinets, there's no wall in which to mount switches and receptacles. Since it's against code to install electrical fixtures in counters, your only option is to put them in the cabinets. It's a good idea to talk to the local inspector before you build or install islands or peninsulas. Local codes vary, and each inspector has his or her own way of interpreting them. For example, on islands wider than 30 inches, some inspectors require outlets on both the front and back sides, so that appliance cords don't have to run across the work area.

Inspectors aren't the only ones who care about the number of receptacles — clients who are paying for a new kitchen don't expect to run out of places to plug in portable appliances. Plus, receptacles need to be conveniently located, because safety concerns have caused appliance manufacturers to use shorter cords.

Drawers complicate the mounting of outlets high on the cabinet boxes. One way to make room for a box in the back panel of an island cabinet is to build a shorter top drawer. This won't work, however, if the island has drawers or doors on both the front and back faces, so the only place left for outlets is on end panels. In this case, put the receptacle lower on the cabinet so the upper drawer will miss it. But this might be inconvenient for the cook, and dropping the outlet doesn't solve anything if the end cabinet is a full bank of drawers.

One solution we use is to build one drawer box narrower than the rest, and space the slide off the carcase with blocks (Figure 2). The front still runs full width, so no one will know the difference until they open the drawer.

When the design calls for open shelv-

ing at the ends of a peninsula or island, even the end panels are unavailable for receptacles. One way to make room is to double up the cabinet sides. Keep the panels far enough apart to accommodate an electrical box, and cover the gap with an extra-wide face frame. Receptacles can be mounted in the false end panel or in the face frame.

Toe-Space Heaters

It's difficult to locate hydronic or forced-air heaters in an open-design kitchen, because most wall space is usually covered with cabinets and appliances. As a result, you'll probably have to provide access for toe-kick heaters.

We usually install an electrical unit by sliding it in through a hole cut in the kick. After the base frame is installed, we use a recip saw to cut the rough opening; the finish trim on the base leaves a nice clean opening for the unit. Later on, the electrician installs the heater and covers the opening with a grill.

Because hydronic toe-kick heaters have to be installed and serviced from above, we cut an access hole in the bottom of the cabinet. We do this in the field, because heaters never seem to be located exactly as planned. It's hard to make clean cuts in the bottom of a finished cabinet, so you can locate the heater under a bank of drawers, where it matters less what the cuts look like. If the access panel is going to show, we make the cutout with a spiral bit in a $1^1/_4$-horse router, using a bushing and site-made template to guide the cut. Once the hole is made, we rabbet the edge of the opening to provide a support lip for a drop-in access panel. You can't reuse the cutout, which will be smaller than the opening, so make sure you have panel material on hand that matches the cabinet interior.

Plumbing

Islands frequently butt against or fit between short stud walls that can accommodate plumbing waste and supply lines. In this case, pipes can be stubbed in horizontally, the same as for perimeter cabinets. This makes it easy for one person to locate the openings and install the cabinet, because you can slide the carcase right up to the horizontal stubs. But if there aren't any walls, the plumbing comes straight through the bottom of the cabinets. Installation is more difficult, because it takes two people to lift a cabinet over vertical stubs. Also, pipes that come through the bottom use up more storage space than those that come in from the back.

Venting creates similar problems. With a peninsula, you can usually run vents horizontally through adjoining cabinets to get to a full-height wall. But venting island drains is tougher, since the only way to get to the roof is to drop back down below the floor. One way to do this is to use a bow vent (see *Kitchen & Bath*, 2/97). It's not complicated, but it does mean putting a lot of extra piping into what's already a very crowded space.

One way to solve all of these problems is to build the island wide enough to allow room for a pipe chase (Figure 3, next page). The chase can run behind a false back panel or, in the case of a double-wide island, between the back-to-back cabinets. (For ready-made cabinets, this will require special-ordering oversized end panels.) With this technique, very little interior space is wasted on mechanicals because everything, including the bow vent, comes up through the chase and enters the cabinets from the back. Whatever plan you use, it's a good idea to talk to the plumbing inspector before you get too far along.

Counter Heights

One of the decisions we make when designing an island is how close to place it to the perimeter cabinets (see "The 31 Rules of Kitchen Design," 9/94), but we may also have to consider cabinet height. Countertops are usually 36 inches above the finish floor, but we've had tall clients who wanted them 38

Fitting Receptacles

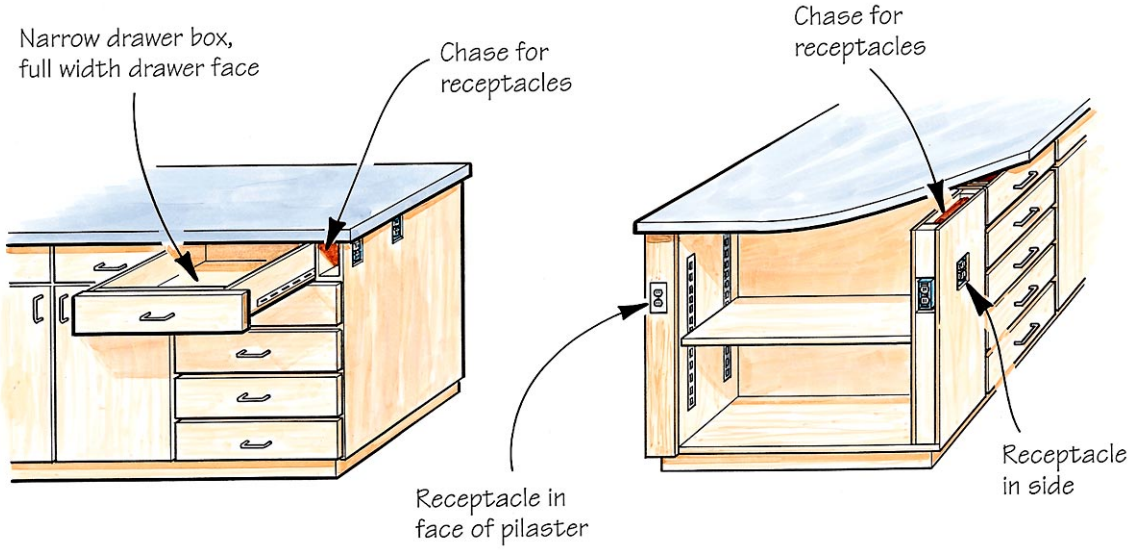

Figure 2. An undersized drawer, concealed behind a full-width drawer face, can provide space for an electrical box. A double-sided bookshelf at one end of an island also works. Receptacles can be mounted in the side panel or in the extra-wide face frame.

Plumbing & Mechanical Chase

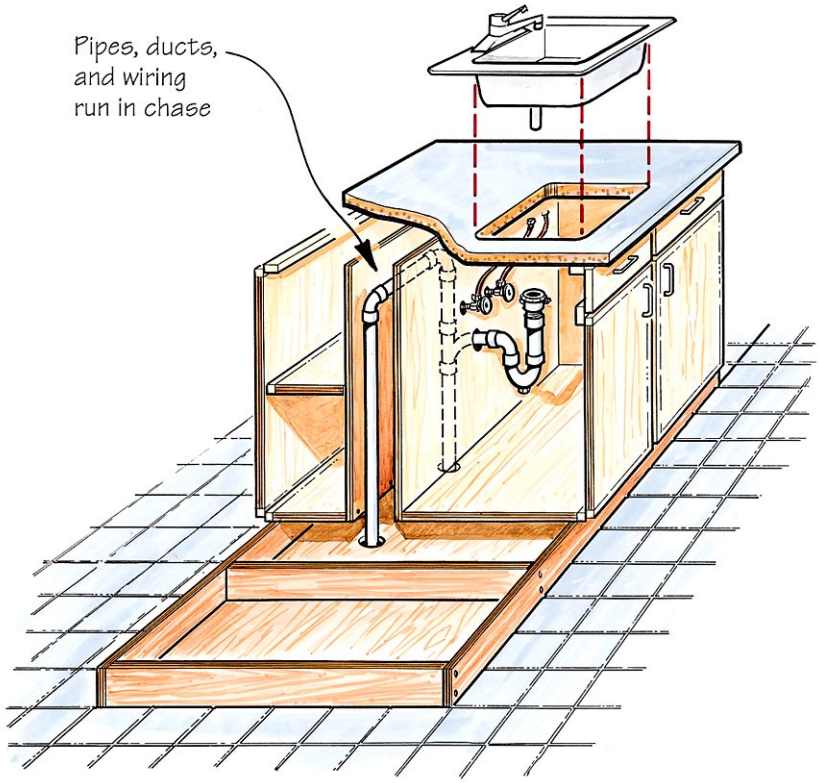

Figure 3. With wider islands, a mechanical chase at the back of the cabinets, or between back-to-back cabinets, as shown, solves all the space problems at once.

inches high. In our custom cabinets, we can build the boxes any height we want, but for ready-made cabinets, you will have to either build a taller base frame or mount the countertop on a spacer strip fastened to the cabinet top. The extra height does not create a problem with appliance installation, although using a taller base frame means you'll have to put a filler strip in the gap between the appliance and the counter. Also, if the cooktop is going into an unusually high counter, remember that building codes require 30 inches of vertical clearance between burners and any cabinets or flammable materials above.

Some of our clients have requested island tops at 34 inches off the floor, because it's more comfortable for them to do pastry work or meal preparation at that lower height. But most appliances won't fit under counters that are anything less than 36 inches tall. In this case, we put appliances like stoves, dishwashers, trash compactors, and ice makers under standard-height perimeter counters. Cooktops and sinks can go in the shorter island, because they aren't affected by lower counter heights.

In open designs, islands and peninsulas often have a seating area with an extra-high countertop (usually 42 inches), so you'll have to install a short backsplash between the upper and lower counters. This splash can be a convenient place to mount electrical switches and receptacles. You should also make sure there's enough room to mount the sink faucet between the sink and the step. If the upper counter overhangs the backsplash, it could crowd the faucet.

Cooktops and Sinks

We try to have cooktops in hand when we build cabinets, because every so often we get spec sheets that are out-of-date. If you read the fine print, there's usually a disclaimer saying that errors in the specs are the installer's problem. Plus, spec sheets don't show little details, such as the thickness of screwheads sticking out the sides and bottoms of metal housings.

Having the appliances on hand also makes it easy to determine if there's room to run electric feeds or gas pipes. For most cooktops, these mechanicals will fit behind a standard 20-inch-deep drawer, but it's worth checking.

The kinds of high-end projects that include islands often specify granite countertops. To avoid cracking the stone, fabricators usually insist on leaving a minimum of 3 inches of stone on all sides of any cutout. Remember to take this into account when designing cabinets or selecting sinks and cooktops. Stone fabricators fasten an undermount sink to the bottom of the counter with metal anchors that are epoxied into the stone. If someone drops a heavy pot into the sink, the counter may crack because of the concentrated shock at the fastener. To prevent this from happening, we usually support undermounted sinks with wooden rails that span the cabinet below.

Vent Hoods

We rarely see range hoods over peninsulas or islands, because people don't want them blocking their view. Instead, many clients prefer cooktops equipped with a downdraft venting system. While duct runs may be longer, installation of these appliances in an island is the same as for a perimeter cabinet.

Standard island vent hoods are available, but may require ducting to a side wall through a joist bay in the ceiling, or to the roof through a chase in the attic or a room above. In either case, before you build, order, or install the cabinets, make sure there's a clear path for the ductwork. Also double-check the location of the duct opening in the ceiling to make certain it aligns with the range.

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