

Installing Kitchen Cabinets

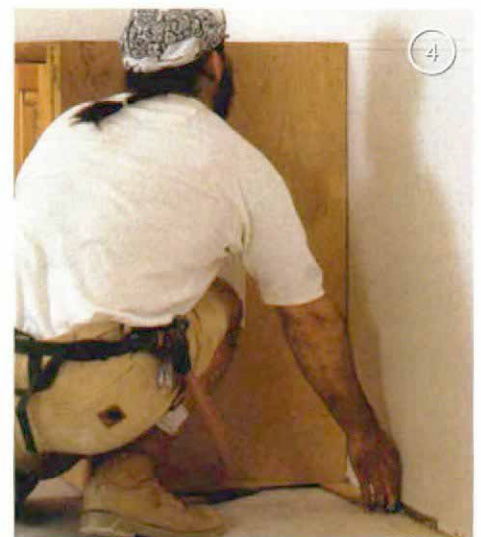
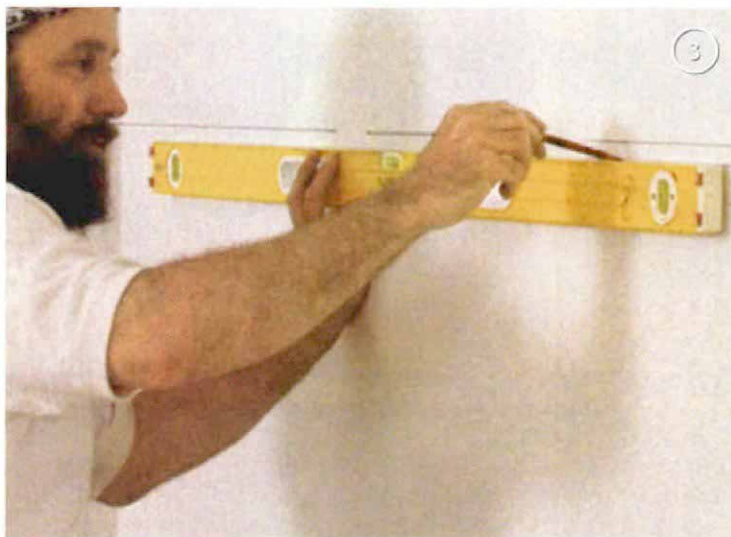
Careful planning and knowing exactly where the framing is help factory-made cabinets go in quickly and easily for a custom look with no nasty surprises

BY KEVIN LUDDY



THE STARTING LINE

The floor is first checked for level (1). The cabinet height is measured from the high point, and a level line is drawn. The same height is measured from the low point (2), and a second line is drawn (3) to find the difference and to check the first line. The first base cabinet is set and shimmed to the top line (4).



In Jonathan Swift's novel *Gulliver's Travels*, the Lilliputians were at war with their neighbors over whether a boiled egg should be cracked from the pointy end or from the round end. At teatime, the British squabble over whether the tea or the milk goes into the cup first. Likewise, on job sites I've seen carpenters argue vehemently about which kitchen cabinets should be installed first, lowers or uppers. There are good reasons for each choice, but you'll have to read on to find out which way I prefer.

Check everything before installation begins

With this kitchen (and with all of my kitchen jobs), I received an information packet from the designer. This packet included the floor plan and elevations that showed backsplash and crown-molding heights, as well as countertop dimensions and the specs of the four built-in appliances.

All this information helps me to bid the job accurately, but I also use it during installation. My first task at the site was to check the stock numbers of the cabinets against the floor plan to make sure the order was complete and correct. I also looked at the cabinets for any obvious damage and arranged them in order of installation and by area (e.g., the island cabinets all together).

Next I measured everything in the kitchen, checking my measurements against the floor plans and elevations. I checked wall heights and lengths, locations of lights and outlets, and window and door locations; I also checked the walls for plumb and straight. The only major problem I found in my investigation was an out-of-place outlet, and lucky for me, an electrician was on site that day.

Two lines set the cabinet height

After checking the floor for level (photo 1, facing page), I measured up the height of the base cabinets (in this case $34\frac{1}{2}$ in.) from the high spot for each run of cabinets and drew a level line across the wall with a 4-ft. level. A laser level would also work well here. I don't recommend snapping chalklines, though. They're usually too fuzzy and not always level.

Next I found the low spot for each run, measured up the same distance (photo 2, facing page) and drew a second line (photo 3, facing page), which gave me the range of floor error and checked the accuracy of my first line. If the lines are parallel, I'm all set. If not, I go back and try it again. The finished kitchen floor ($\frac{1}{2}$ -in. tile over $\frac{3}{8}$ -in. subfloor) had not been installed, so I could count on it to hide shims. (Otherwise, I would have had to undercut, or scribe, every

JOINING CABINETS

Face frames are clamped flush (5) and then screwed together. A framing square clamped to the cabinet (6) keeps tall cabinets square to shorter ones. Tall cabinets are plumbed (7) and then screwed to the wall. Cabinets are kept level while they're being joined (8).



base cabinet, which is time-consuming.) The top line then became my guide for cabinet level.

I then marked the stud locations along the level line. I also located critical points such as the window centerline. Some carpenters mark the location of each cabinet along the level line, but I usually scrunch the exact locations by fractions as I go to make everything fit, which would render those marks wrong.

The base cabinets go in first

Installing base cabinets first takes a little more care, but I use the lowers to help with installing the uppers. Besides, most bad surprises show up when installing the lowers.

For this kitchen, I began with the lazy-Susan corner cabinet. I transferred the stud locations to the back of the cabinet and drilled screw holes through the hanging strip for every stud location.

Then I placed the cabinet in the corner, shimmed it plumb and level (photo 4, p. 82), and drove a #10 by 2½-in. pan-head screw through each hole. I steer clear of using drywall screws when I'm attaching cabinets because they have little shear resistance. Then I laid out and drilled the screw holes for the cabinet to the left of the corner and slid it into place.

To join the two cabinets, I first clamped the face frames together, lining up the faces and the tops flush. Next I shimmed the cabinet plumb and level, and joined the face frames with screws through predrilled holes. I finished by screwing the cabinet to the wall.

This kitchen had a full-height wall-oven cabinet next in line. To attach the cabinet, I joined the face frames as before (photo 5, p. 83) but clamped a framing square to the top of the base cabinet to keep the oven cabinet square to its neighbor (photo 6, p. 83). I then plumbed the other side of the oven cabinet (photo 7, p. 83) and drove screws top and bottom to hold it in place.

Fridge cabinet is assembled on site

On the other side of the corner, I leveled and installed a double-drawer base cabinet (photo 8, p. 83). The fridge cabinet that came next had to be built on site from factory-supplied parts.

I began by setting the overhead cabinet on its side. Next I positioned one side panel on the overhead cabinet, supporting its loose end on a base cabinet. After lining up the top and front edges, I screwed through the panel and into the cabinet.

After carefully flipping over the unit, I installed the opposite side panel (photo 9), this time using trim screws. With the unit assem-

BUILDING THE FRIDGE CABINET

The refrigerator cabinet is made from two side panels joined to a top cabinet (9). The cabinet is carefully positioned (10) and attached to its neighbor. Wall cleats hold the sides at the proper width (11).



bled, I lifted it and rotated it into place (photo 10, facing page). Like most refrigerator cabinets, this one was deeper than the base cabinets. I plumbed and leveled the cabinet and then screwed the left side into the face frame of the adjoining base cabinet.

Holding the unit plumb, I screwed the overhead cabinet into the studs. To stabilize the sides and to keep them at the proper width, I screwed two spreader cleats to the wall, one at the floor and another at the height of the base cabinets (photo 11, facing page). A trim screw anchored the side panel to the cleats. The finish floor will lock the bottoms of the panels firmly in place.

Bevel cut makes a tight scribe

This kitchen had two other cabinet runs, a freestanding island and cabinets along an outside wall for the kitchen sink, dishwasher and trash compactor. The kitchen-sink base had to fit over a toe-kick heater and accept an unusual sink, so I assembled it from parts supplied by the cabinet company (sidebar right).

The sink base had a fixed width, so I marked out its dimensions centered on the window. Next I double-checked all the clearance specs and left the correct space on both sides of the sink base for the

SCRIBING AN ATTACHED FILLER

Cabinets with attached fillers have to be scribed to fit. With the cabinet in place, the cut is traced onto the filler (12). Next, the cut is made with the saw tipped to create a bevel (13), which lets the cabinet fit tight against the wall (14).



A sink cabinet from factory-supplied parts

While writing a song, a friend once asked me how many Ps there were in "obstacle," as though it rhymed with Popsicle. Of course, there are no Ps in "obstacle," but there were many obstacles to using a stock cabinet at the sink location in this kitchen project.

In addition to the plumbing pipes, it was to receive a specialty sink, and it sat over a toe-kick heater vent. With all these variables, the designers opted to build the cabinet on site from factory-supplied parts.

I started by building the toe kick of 2x stock ripped to a height that would fit the vent cover supplied to me. It was slightly taller than the standard toe kick, but the difference would be seen only by the bristles on the kitchen broom. With the appropriate gap left for the vent, I squared and leveled the base, centered it under the window, and glued and screwed it to the floor (top photo).

The base platform went on next, followed by the sides (center photo). I cut the lower front corners of the side pieces to match the toe kick on the rest of the kitchen. A 1x wall cleat anchored the sides in back.

Building the sink base from parts meant not having to drill holes for the plumbing, but when drilling is necessary, I measure the vertical location from my level line on the wall. I take the horizontal location from the adjacent cabinet and transfer this information to the back of the sink base, remembering to subtract for any face-frame overhangs. Next, I bore halfway through from the backside and then finish the hole from the inside.

The final step was installing the finished front, which was glued and tacked to the sides (bottom photo). It looked a little funny when I was done, but I knew that with the countertop, sink and appliances in place, you'd never be able to tell that the cabinet was built on site.

—K. L.



appliances. On the right side of the dishwasher, I installed a wine-rack end panel screwed to a 2x cleat on the wall.

The cabinet on the other side of the trash compactor had a pre-attached filler piece that had to be scribed to make the cabinet fit properly. To mark the scribe, I first set the cabinet in place and shimmed it level and plumb. Then I set my compass scribes and marked the cut on the filler piece (photo 12, p. 85).

I try to put a slight bevel on all my scribe cuts, so I tipped the saw table slightly as I followed the line (photo 13, p. 85). Masking tape on bottom of the saw helps to protect the cabinet. The bevel cut lets the cabinet fit more tightly against the wall (photo 14, p. 85). If the cut needs fine-tuning, I do it with an electric grinder. When I was happy with the fit, I screwed the cabinet into place. Note that with a wider filler piece, a wall cleat may be needed for attachment.

Blocks anchor the island in place

Islands and peninsulas are special situations because the cabinets don't attach to walls. For this island, I began by snapping chalklines on the floor, laying out the full perimeter of the island.

One side of this island had a standard toe kick, but the other side was to be covered with a solid beadboard panel. On the toe-kick side,

I subtracted the toe-kick depth and the thickness of the cabinet wall and snapped a second line. I also marked where the cabinets were joined together. I then glued and screwed 2x blocks to the floor at the ends of the island and along the toe kick, leaving plenty of space where the cabinets would be joined (photo 15).

Next I ran a bead of construction adhesive on the blocks where they would contact the cabinets and then slipped the cabinets over the blocks. The cabinets were then clamped and screwed together in the front and back (photo 16), keeping the whole assembly level and square. I screwed the cabinets to the blocks along the toe kick (photo 17) where the screws would be hidden and drove the trim screws through the end panels to hold them in place until the glue cured. The beadboard panel went on next (photo 18), and the island was solid as a rock.

Upper cabinets ride piggyback on the bases

With all the lower cabinets in place, the final step before moving to the upper cabinets was installing countertop support cleats as needed. The first upper cabinet I set in was the corner unit that was to rest on the countertop. I blocked the corner unit to the thickness of the countertop and made sure that it was absolutely plumb and level. I al-

ASSEMBLING THE ISLAND

After chalklines are snapped for the island, 2x blocks are glued and screwed inside the perimeter (15). The cabinets are then glued to the blocks and joined front and back (16). Screws driven into the blocks from the front (17) will be hidden by the toe kick. A finished panel is then glued and screwed to the cabinet backs (18).



so checked the distance to the other cabinets. The corner cabinet was left loose with the idea that I could slide it up and out of the way when the countertop was installed and then drop it down for a precise fit on the granite counter.

For this kitchen, the refrigerator cabinet and the oven cabinet set the height of the upper cabinets. I marked the stud locations on the hanging strip of the first upper cabinet and drilled holes through to the inside of the cabinet (photo 19).

Next I cut two 2x riser blocks to the exact distance between the upper cabinets and lower cabinets. I screwed the blocks to the wall where the screw holes would be hidden by the backsplash (photo 20), which let the base cabinets take the weight and set the level. I then placed the predrilled cabinet on the blocks and pushed it into place against the wall.

I drove screws through a couple of the holes to hold the cabinet in place temporarily while I checked for plumb and level. Shims were added where needed, and then I drove screws in permanently through all the predrilled holes (photo 21). I also predrilled and drove in screws along the bottom inside of the cabinet and through the face frames.

I rechecked the corner cabinet for plumb and followed the same installation procedure for the rest of the uppers. At the window, I set

the wall cabinet to the right of the window and then scribed the left-hand cabinet so that it fit at the same distance from the window.

Finishing up

As the upper cabinets go in, I pay extra attention to doors to make sure that plumbing and leveling hasn't caused them to rack. If I do notice a racked door, I try to cheat the cabinet a little to compensate, or I fine-tune the door after all the cabinets are in. I finish off the kitchen by applying the toe kick, crown molding and knobs.

These kitchen cabinets came with holes for the knobs already drilled. But if this isn't the case, I double-check with the clients for the exact knob locations before mounting the knobs or pulls. I putty all the nail and trim-screw holes, but usually save any touch-up until after the countertops are installed. All doors are given a last check for swing and fit, and I check shelves, drawers, lazy Susans, etc.

I give the room a quick sweep, which keeps me in the good graces of the clients and contractors and ensures that I've rounded up all my tools. Now we're finished. Let's eat!

Kevin Luddy runs Keltic Woodworking, a custom-carpentry and cabinet-work business in Wellfleet, Massachusetts. Photos by Roe A. Osborn.

UPPER CABINETS GET A BOOST

Stud locations are marked on the back of the cabinet, and holes are drilled (19). Blocks cut to the distance between the uppers and lowers and screwed to the wall (20) hold and level the cabinet until screws are driven into the predrilled holes (21). After plumbing and shimming are done, extra screws are driven through the hanging strip and through the face frame.

