



Story poles are packed with information about the essentials of a project's construction. The author uses two story poles, one for the site, the other for the shop. Here, he transfers information from a site pole onto a cabinet pole.

Story Poles and How to Use Them

An ancient measurement tool ensures precise, fail-safe layouts

by Jim Tolpin

When I began working with wood over twenty years ago, one of the first tools I bought and taught myself to use was the steel-rule tape measure. I soon found it constantly in my hand, using it to make cutoff marks, to lay out assembly positions or to determine the dimensions of a space or the length of a piece of wood. I couldn't imagine woodworking without it—even though I was often frustrated by misread measurements and imprecise layouts. I assumed that these problems were due to my lack of experience, innate clumsiness and the early onset of senility. Unaware of any other way

to take measurements or to make layout marks, I never thought to question the tool itself—until the day an elderly cabinetmaker nicknamed "GentlemanJim" showed up on our job site.

GentlemanJim had been hired to build a custom kitchen for the timber-frame house we were building, so he'd come to take measurements of the framing and utility rough-ins. I watched incredulously as he unpacked his "tools," which consisted in their entirety of a pencil and three long sticks. I was working on the roof, so I missed whatever magic he performed down in the kitchen, but I was able to catch

up with him just as he was heading out the door. Noticing the sticks were now covered with lines and written notations, I asked him what they all meant. He breezily informed me that the kitchen was on the sticks, just like the great pyramid of Giza was on a cubit stick. I came to understand that Jim was going back to his shop to build a complete set of kitchen cabinets without having once pulled out a tape measure.

From pharaohs to foot rules

Having hooked my attention with that bait about the pyramid, the old cabinetmaker proceeded to explain to me about these

Fig. 1: Recording site measurements on a story pole

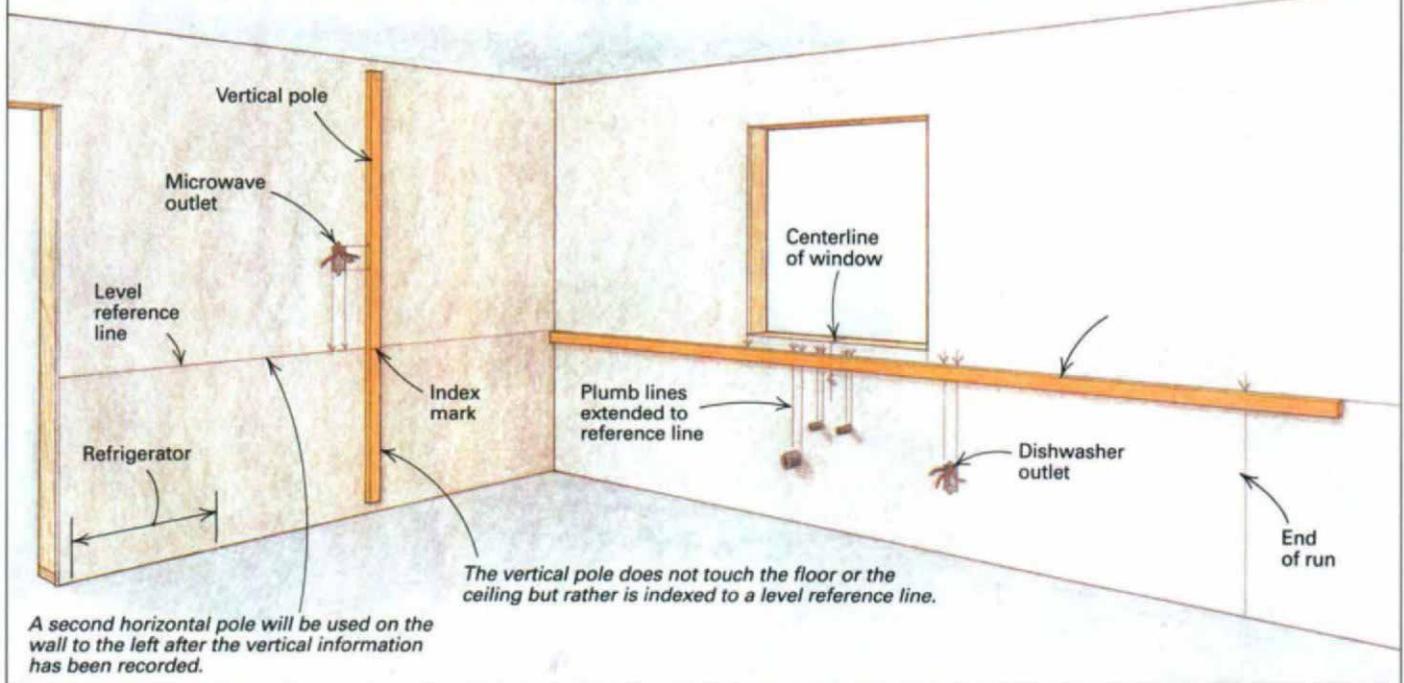
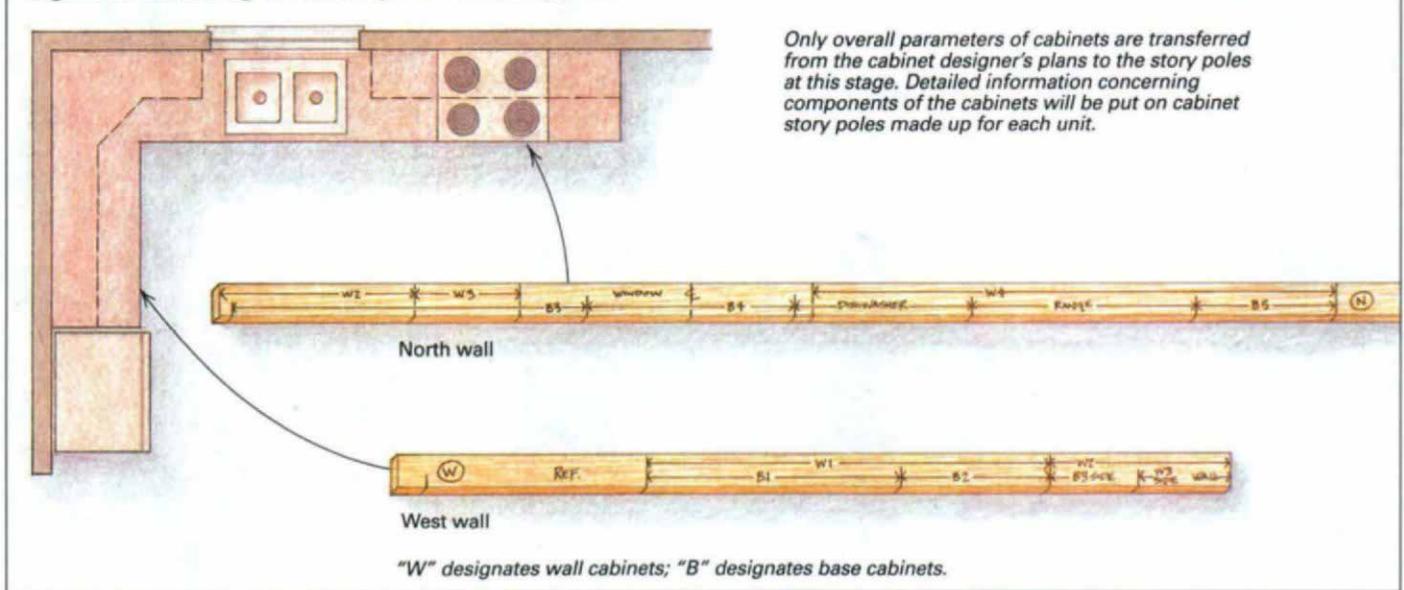


Fig. 2: Transferring cabinet layout to a story pole



marked sticks he called "story poles" and how he got away with not using a tape measure. Jim explained that the graduated rule was a relatively new phenomenon in the woodworking trade. The first rules as we know them—2-ft.-long folding sticks graduated with inch marks divided into sixteenths—didn't even exist until the beginning of the last century. Prior to then, all measurement and layout work was done by marking up straight sticks or rods.

Then Jim told me of his trip to Europe, where he was awed by the magnificent and astonishingly complex woodwork of the cathedrals built in the Middle Ages. He

couldn't see where those craftsmen suffered from their lack of graduated rulers. Indeed, the layout of the great pyramids over 40 centuries earlier was done with a stick of a determined length (the renowned cubit). That massive layout job, executed with such a "crude" layout tool, was accurate to .05%. Jim figured if stick layouts were good enough for the popes and the pharaohs, they were good enough for him.

Eventually, I got off the roof and into the house, becoming a cabinetmaker and furnituremaker. When I did, I embraced Gentleman Jim's use of story poles. At first, I used them only to record on-site informa-

tion concerning rough-framing and the positions of utilities that affected the design and construction of my cabinets. As I became more confident and more proficient with the sticks, I extended their use to all of my layout tasks. I now develop most dimensions of cabinet and other built-in components and mark all joint and assembly positions with story poles. Happily, misread or inaccurately marked measurements have all but disappeared from my work. Continuing to experiment with story poles, I have found a number of ways to make them easier to read and more versatile (see the box on p. 69).



Cutting error is eliminated when cutoff marks for cabinet components are transferred directly from the cabinet story pole to the wooden miter-gauge extension on the author's tablesaw (above). He transfers the cutoff mark, clamps a block to the extension and then cuts all like parts at one time, thus ensuring consistency from one part to another.

A cabinet story pole also works well as an alignment aid for positioning internal partitions (right). The author tacks the cabinet story pole to the cabinet front, indexing it to the outside edges of the cabinet, positions the partition and then screws through the horizontal stretcher to fix the partition in place.



Site story poles

When taking on the building of a set of kitchen cabinets or other built-in case work, the first thing I do is record site measurements on a few $\frac{3}{4}$ -in. by $1\frac{1}{2}$ -in. straight lengths of a light-colored wood such as pine (see figure 1 on p. 67). I check the plans to be sure I have sticks long enough to span each run of cabinetry and at least one stick to run nearly floor to ceiling. If cabinets will run the full length of a wall, I use two sticks, each about 1 ft. longer than half the span. On site, I'll slide them by one another and tack them together with their ends butting into the corners, marking across both of them for later reference.

To avoid confusion, I resist the temptation of laying out more than one wall on a stick (such as putting a second wall on the back of the stick or on an adjacent side) or of squeezing another layout on an unused end. For the vertical measurements of a set of cabinets, however, I make up only one story pole because that vertical information is usually the same from wall to wall. If I do have to record certain measurements for a specific wall, I'll mark them on the edge or back side of the generic floor-to-ceiling stick, indicating clearly which wall these marks represent.

When building a set of kitchen cabinets or a built-in for a new house, an addition

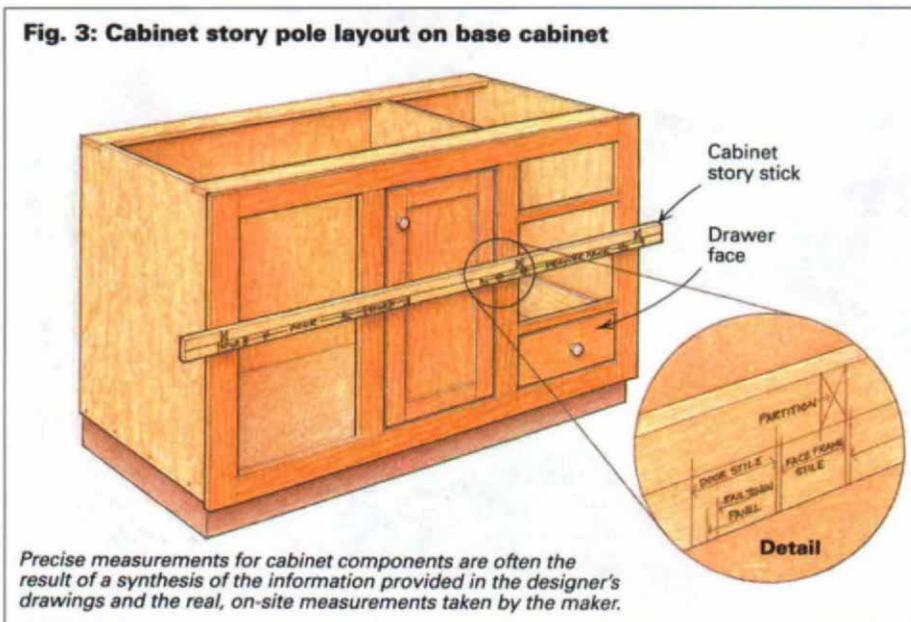
or a remodel, I wait to record the site measurements until all door, window, plumbing and electrical work has been roughed in and drywall has been hung. This way, anything that might affect cabinet layout has already been done.

First I strike a level reference line at a comfortable working height—about 40 in. for me—around the perimeter of the kitchen. A builder's sighting level or a reservoir-type water level makes short work of this task. I then draw plumb lines to the reference line from all the utilities and the edges of any rough openings. Working to an established level reference line and using plumb lines is far more accurate than marking out from the floor or corners, because you eliminate the possibility of errors due to varying floor heights or out-of-plumb walls.

My next step is to transfer the site measurements I've marked on the reference line to a story pole. I hold the stick firmly to the line with one end pressed tightly into a corner, and I make a tick mark at each marked point on the wall. I use a fine pen or sharp pencil, and I note what the mark indicates on the stick. I then use a small square to extend the mark across the face of the stick.

I also make a note near the end of the stick touching a wall to tell me how far out of plumb the wall is. I measure and record the maximum deviation by holding a 4-ft. level against a thin, straight section of plywood to extend the distance over which I'm taking the reading. A "+" by this number tells me that the wall leans away above the level of the reference line; a "-" indi-

Fig. 3: Cabinet story pole layout on base cabinet



Precise measurements for cabinet components are often the result of a synthesis of the information provided in the designer's drawings and the real, on-site measurements taken by the maker.

cates that the wall leans in. This information tells me how much vertical trim I'll need to add for scribing the cabinets to the wall. While I'm still on-site, I'll also sometimes indicate the centers of the wall studs on my story pole to help me locate nailers.

Having made a set of site-plan story poles, I've created a full-scale rendering of a room. All the information I need to develop the cabinets for this space either exists on or can be deduced from these few humble sticks. I need return to the site only to install the completed cabinets.

Once I'm back in my shop, I refer either to an architect's floor plan or to my own sketches, depending on whose design the cabinets are, and I lay out the cabinets for each wall face on the appropriate stick (see figure 2 on p. 67). I account for appliances and their clearance spaces by referring to the spec sheets. Once I have determined the overall length and width of each cabinet and marked their locations on the site-plan sticks, I'm ready to make up another set of story poles—one for each of the cabinets.

Cabinet story poles

Each of the new cabinet story poles will show the width and height of every component that makes up a cabinet. I make these story poles out of 1½-in. strips of light-colored ¼-in. plywood, cutting each a couple of inches longer than the overall dimension it must record.

To transfer the outside lines of the cabinet from the site pole to the cabinet story pole, I hold the strip firmly against the site pole, extending the strip past each end mark because the end of a stick makes a poor reference (see the photo on p. 66). I make tick marks indicating the outside parameters of the case and square the marks across the cabinet story pole. For accuracy, I always place the point of my pencil on the tick mark first and then slide the square up to the pencil.

Finally, I get to use my old friend, the steel-rule tape measure. Having established the outside dimension marks on the cabinet's story poles, I lay out the widths of the stock that make up the various components and account for clearances for hardware (see figure 3 on the facing page). In a sense, the lengths and widths of many of the case's components are arrived at by default. For example, the length of a cabinet door's rail may be the result of subtracting the width of the stiles at either end and then adding for the tenon length.

When it's time to cut the actual pieces for the cabinets, I could use my tape measure to transfer dimensional information from

the cabinet story pole onto the stock, but there's a better way. I just go straight from the cabinet story pole to the tablesaw, pencil my cutoff marks onto the wood extension to my miter gauge, clamp a stop in place and make my cuts (see the photo at left on the facing page). By avoiding a measuring tape, I eliminate any chance of making a measuring error.

Cabinet story poles often become a tangle of lines. To make them a little more legible, I like to separate the layout of internal components (sides, partitions, stretchers and back panels) from that of face components (face frames, doors and drawer faces). To do this, I simply draw a line lengthwise down the middle of the stick, laying out the internal components on one side and the external on the other. In addition to reducing the number of lines in proximity to one another and leaving more room for notations, the split stick

clearly shows how the various components relate to one another.

Sometimes, I use a story pole for a purpose besides laying out its components: I use it for an assembly aid to position those components for fastening. For example, when constructing a kitchen cabinet base unit, I attach a horizontal stretcher across the top of the partitions before installing the face frame (see the photo at right on the facing page). To position the free-floating inner partition at the required distance from the cabinet ends, I tack the cabinet story-pole strip temporarily across the front of the cabinet and line up the partition with the marks indicating its position on the story-pole strip. Then I just screw through the stretcher into the partition, fixing it in place. □

Jim Tolpin is a writer and a woodworker in Port Townsend, Wash.

Joinery and hardware story poles

When laying out certain joints to be hand-cut, I often use a miniature story pole to speed the process and ensure an accurate, consistent layout. For example, when cutting dovetails by hand, I find it easiest to figure my spacing, lay out the centerlines of the pins on masking tape stuck to a flat, accurate square and mark the top edges of all the pins. Then I just put tick marks at the ends of the boards I'm cutting pins on, strike a line from tick mark to baseline using my bevel square and I'm ready to go. I'm careful always to reference the same end of the square to the bottom edge of the box sides, so the pins and tails will line up all around the box. This way, I only have to measure once for the original layout, and the rest of the pin-marking is exactly the same and without any measurement mistakes or headaches. I lay out the tails directly from the pins.

Another good use of a mini-story pole is for laying out hardware, whether hinges, pulls, knockdown fittings or other types. I made a simple butt-hinge layout story pole by screwing a thin ebony offcut (about ⅜ in. thick) to a piece of pine and marking the hinge width across the piece of pine. The ebony offcut catches on the edge of the door, making the story pole slip-proof and also provides just the right amount of clearance above and below a flush-fit door to prevent it from binding. —J.T.



A quick story pole for dovetails—*Masking tape on a square is all it takes. The author chooses his spacing either by measuring or by eye, marks centerlines and pin widths at the edge of the board, and then strikes a line against his bevel square to the baseline.*

A hinge-layout story pole *consists of a thin piece of ebony and a short pine board. Together they index the hinge and provide door clearance.*

