# Chapter 1:

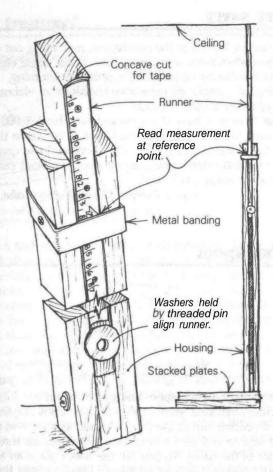
# Layout Tools and Techniques

#### The slip stick

This versatile time-saver uses a simple story-pole principle. I call it the slip stick, and I use it to measure distances between floor and ceiling without running up and down ladders or bending my tape into hard-to-read compound bends.

The basic components of the slip stick are an old tape, a few pieces of 1x stock and whatever hardware you have around to make it work. The first component is a 7-ft. U-shaped housing, as shown in the drawing on the facing page. The second is a 6-ft. runner that fits inside the housing, where it can slide up or down. The runner has a portion of a tape-measure blade screwed to it. The portion of the tape you'll need is from the 7-ft. mark or so (attached to the top of the runner) down to about 13 ft. If you want to get fancy you can cut a concave curve into the runner, so the edges of the runner and tape will be flush.

Near the top of the assembly, I hold the two components together with a metal band that doubles as a reference point. It has to be precisely placed so that the tape at that point reads the exact length of the stick with the runner retracted. At the bottom of the runner I bolt a large washer on each face to keep the runner in the housing.



When my slip stick is closed, I can slip it under a ceiling of minimum height With the 6-ft. runner extended, I can measure ceilings up to 13 ft. high. When I measure for a new wall in an old space, I cut the top and bottom plates and set one atop the other. With my slip stick on top of them, I can read the exact stud length without having to subtract the thickness of the plates. —Sam Yoder, Cambridge, Mass.

#### Scratch scriber

Don't throw out deformed Phillips-head screwdriver bits.

Grind them to a sharp point, and use them in a pencil scriber for scratch scribing.

—Tom Law, Davidsonville, Md.

#### Survey savvy

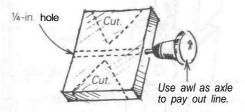
I build custom homes in the mountains, and laying out a foundation when none of the points are at the same elevation (sometimes differing up to 20 ft.) is a time-consuming, frustrating job without an expensive transit or an elaborate system of stepped batter boards.

The tip here is to have the surveyor, with his \$20,000 laser transit, set the comers of the house at the same time he locates the initial property lines. The surveyor I use charges only \$20 for this extra service, and it saves me what can

amount to an entire day's work.

-Eric Carter, Green Valley Lake, Calif.

### **Dryline** spool



The best type of dryline spool that I have found is homemade, fashioned from a piece of ½-in. thick acrylic. I cut V-shaped notches out of the acrylic blank, as shown in the drawing, and then drilled a ¼-in. dia. hole edgewise through the center of the spool. To pay out the line, I place an awl in the hole, where it acts as an axle as I walk out the line.

Acrylic is remarkably strong. My **stringline** spool has survived a **50-ft**. drop onto concrete, and being run over by a **dumptruck**. Cost of the acrylic blank: \$2 per lifetime.

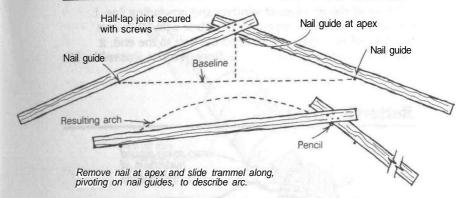
-JeffreyD. Taylor, Corvallis, Ore.

#### **Durable chalklines**

Chalk layout lines are invariably erased by brooms, rain and **shoes—especially** on concrete. If you like to do your layout well in advance of the work it will guide, spray the lines with **polyurethane** varnish or some other clear finish. The lines will stay put until you need them.

-Dennis Lamonica, Panama, N. Y.

#### **Arch trammel**



Here is a technique that I have found handy for laying out wide, shallow arches. I discovered it at a shipyard, where boatbuilders use it for laying out the rounded camber of boat decks.

On a clear, flat, wood surface, such as a **subfloor**, draw a straight line as long as the arch will be wide, as shown above. Drive a finish nail at each end of this baseline, so that about 1 in. of the nail's shank projects above the floor. Find the center of the baseline, and draw a perpendicular line extending up from the center, making an inverted T. Decide the height of your arch, measure along the perpendicular line from the baseline, and drive a third finish nail at the apex.

Now find two straight 1x boards, each one a little longer than the length of the baseline. Snug one board against one base nail and the apex nail, and lay the other board against the other base nail and the apex nail. Where the boards overlap, mark them for a half-lap joint. Then cut the joint and screw the boards together.

Pull out the apex nail, and hold a pencil in its place. Now slide the boards along the baseline nail guides from right to left to mark the arch. As a variation, you can mount a router at the apex and cut or mold arches of any size.

-Jerry Azevedo, Corvallis, Ore.

# Stabilizing plumb bobs

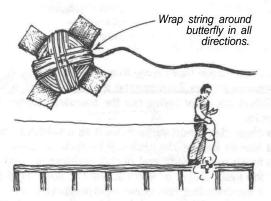
As a construction millwright, 1 frequently need to establish very accurate plumb lines for machinery alignment in places where a transit is impractical. I rely on my 24-oz. brass plumb bob. When it's not necessary for the end of the bob to

be visible, I immerse it in a bucket of oil to reduce motion from vibration and wind.

To avoid the problem of winding and unwinding line, 1 replaced the string in an empty chalkbox with 50-lb. test braided nylon fishing line and tied the bob to the end; it makes a convenient reel.

—Dave Walter, Rossville, III.

### **Butterfly spool**



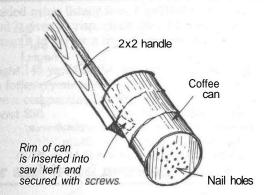
To avoid losing a ball of string when you're walking a plate, laying out a hillside or stringing a ridge, wrap your line around a butterfly spool. You can cut one out of plywood, or nail a couple of short pieces of lath together. To play out the line, hold the string instead of the spool. The butterfly will unwrap in jerks and jiggles, never getting too far away from you. If it does happen to wander, just give it a jerk and it will fly right back to you. —Robert Rix, Arlington, Va.

#### **Foundation line markers**

When I string lines for a foundation, I use alligator clips to mark the outside dimensions of the building. These clips are available at any electrical-supply house and even at some large hardware stores. They're easy to see, and I can quickly move them as I adjust the lines into square. I usually keep about a dozen clipped to my apron as 1 work.

-Charles Fockaert, Eureka, Calif.

#### **Limeless lines**

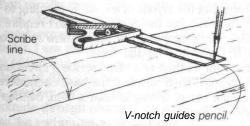


Rather than scatter **handfuls** of lime to mark out excavations, I use flour. It's cheaper than lime, less toxic and very available. I put the flour in a coffee can that has a grid of nail holes punched in the bottom. To make the can easy to control, I insert the top rim of the can into a kerf cut in a 4-ft. to 5-ft. 2x2 handle. Screws secure the can to the handle.

To use the tool, I let it hang loosely in one hand with the can about 6 in. from the ground. I run the handle along my dry lines, tapping it with a block or hammer to sift a line on the ground worthy of a football field.

-Eric Carter, GreenValleyLake, Calif.

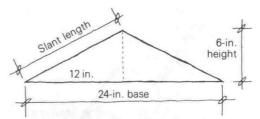
## Pencil scribing



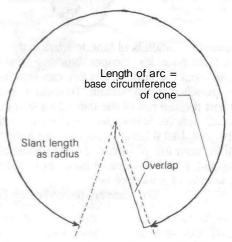
I file a small, V-shaped notch in the end of my combination-square blade to guide the tip of my pencil when scribing straight lines for ripping to width. The point stays put as the square is moved along the edge of the work, and makes a quick, accurate scribe at the width I need.

-Paul Dostie, Brunswick, Malm

### Laying out a cone



Determine slant length and base circumference: Slant length =  $\sqrt{12^2 + 6^2} = 13\%_{16}$  in. Base circumference =  $24 \times \pi (3.14) = 75\%$  in.



I have been intriqued with this shortcut which you may find of interest. Cones have several uses, such as sheet-metal chimney caps, but the layout of a cone is puzzling to some craftsmen. Here is a fast method that doesn't require higher mathematics. The example above shows how to lay out a cone 6 in. high with a 24-in. dia. base.

Using the slant method as radius, scribe a circle on the material, and snip. Then measure the base circumference of the cone on the circle, adding at least a ¾-in. overlap for screws, and cut the wedge.

-William A. Julien, S. Chatham, Mass.

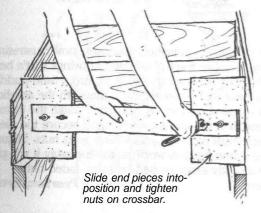
#### It's a fine line

Many times timber framers need to lay out long, accurate cutting lines. A standard string in a chalk reel yields a fat,

sloppy line, so I went looking for a replacement that would give me a finer line. After some research, I settled on 20-lb. test braided nylon fishing line. 1 find that it holds chalk very well, and it gives a crisp, clean line. If I need an even finer line, I snap it in the air a time or two before I lay it on the work.

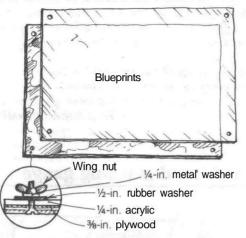
I bought 140 yards of the braided line for about \$7—enough for everyone in the shop. The only tools that I've seen that give a comparable line are Japanese ink lines, which cost about \$50. —Tom Baker, Bliss field, Mich.

### Riser and tread marking gauge



It would be nice if the treads and risers in a site-built stair could all be the same, but the vagaries of wood-frame construction usually mean that uniform lengths and 90° angles are as often exceptions as they are rules. To get accurate measurements for treads and risers that vary by just a little bit, I use the marking gauge shown in the drawing. It consists of two end pieces and a crossbar, all made of 1/2in. particleboard. The end pieces are secured to the crossbar with nuts, washers and four 1/4-in, flathead machine screws. which protrude through oblong slots in the crossbar. The slots allow the end pieces to be moved in and out until they make a snug fit with the skirt boards—even if they are a bit out of square. Once the fit is right, I tighten the nuts and transfer the entire gauge to the riser or tread stock, where I can mark the exact layout without making any tedious -James M. Westerholm, Seattle, Wash. measurements.

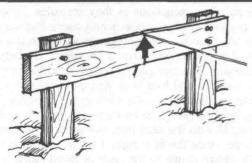
### **Blueprint frame**



If you do construction layout, you know how frustrating it can be to decipher a set of working drawings that's been soaked by rain or blown by the wind into a mud puddle. To avoid this problem, I protect the prints with the acrylic and plywood frame shown in the drawing. I make the frame a little larger than the job drawings, and I secure the pieces at the comers with machine screws and wing nuts. I figure the effort this frame takes is worth it, for someday it will probably save me a costly error caused by some faded-out dimension.

—David Pearson, Crane, Mo.

# **Batter-board stringlines**

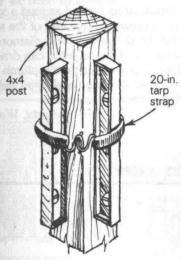


I use the method shown in the drawing above to fasten my building lines to the batter boards. First I nail my batter boards roughly ¼ in. above my string height. Next, 1 mark the string height on the face of the board, and use a handsaw

to cut a kerf down to my mark. The string will hold fast if it's lapped over itself in the kerf.

To make sighting easier after the string is removed, 1 mark a large arrow on the inside face of the board. Not only is this method easy and accurate, but it also dispenses with exposed nails, which can be bent out of alignment or even cause accidents. —Robert J. Meehan, New City, N. Y.

#### **Plumbing posts**



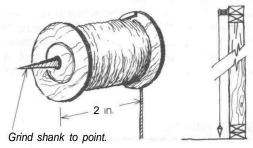
When I set posts, I find it awkward to plumb first one face, then the one next to it. One side is always getting a little out of adjustment, so 1 use two levels strapped to adjacent faces of the same post, as shown. For a 4x4 post, a 20-in. tarp strap is the right length to secure my two levels. Now I have enough hands to set the post, and my level isn't on the ground when I need it —Patrick Lawson, Sooke, B. C.

### **Locating studs**

If you need to locate a stud in a stick-framed wall, remember that most electricians are right-handed. Find an outlet, and tap the wall directly to its left. The odds are in your favor that the stud will be there, and you can measure away from it in 16-in. increments to find other studs.

-Art McAfee, Edmonton, Alta.

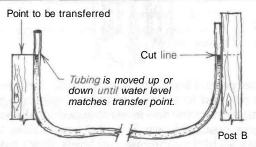
### A better plumb bob



I keep my plumb-bob string wound around a spool exactly 2 in. long. I drive a screw into one end of the spool, cut its head off and grind the shank to a long, diamond-shaped point. Since I usually work by myself, I can drive the point into the top plate of the wall and dangle the plumb bob off the end of the spool. When the bob hangs 2 in. out from the bottom plate, I know the wall is plumb.

-Earl Roberts, Washington, D.C.

#### Homemade water level



Let's say you've just put four posts in the ground for a sun deck and now need to cut them all off at the same height. What do you do? If you have a builder's level or transit you're all set, but if you don't, this water level is a very simple and inexpensive way to solve the problem. It consists of any length of clear plastic tubing (or a hose with clear plastic extensions at the ends) and works on the principle that water seeks its own level.

First, fill the tubing with water, leaving a foot or two of air at the ends, and hold one end against the point to be transferred, as in the drawing above. Another worker takes the other end of the tubing to the first post to be cut off (post B in the drawing).

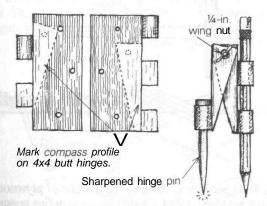
The person at post B holds the tubing against it while the person at the other end moves the tubing up or down until the water level in the tubing matches the level of the point to be transferred. When this has been accomplished, the waterline in the tubing at post B will be the same as at the transfer point.

Always transfer levels from the original point to lessen accumulated error. Remove all the air bubbles from the **tubing—they** can affect accuracy. Remember that no part of the tubing should be higher than the ends.

This tool is useful in many ways on a building site. We use it whenever we need to transfer a level point farther than the length of a carpenter's level.

-David Barker, Gardiner, Maine

#### Homemade scribe



The carpenter's scribes sold in lumberyards and hardware stores are so flimsy that they will self-destruct just rolling around with other tools in your nailbags. Sturdier versions are sold by mail order, but they cost around \$20. Rather than spend the cash, I made the one shown here out of an old 4x4 butt hinge. It's accurate, nearly indestructible and easy to make.

I cut out the basic shape with a hacksaw, filed down the rough edges and drilled holes to accommodate a **1/-in** wingnut pivot. A sharpened hinge pin makes a good turning point. The pin and the pencil are held in place by friction. If the slots are a little loose, a squeeze in the bench vise will tighten them up in a hurry.

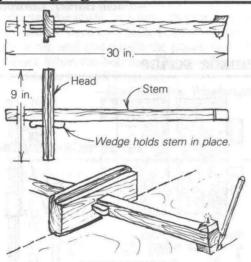
-John H. Sandstrom, Fort Dodge, Iowa

#### **Chalkbox** conversion

Here's the setup that I use for my foundation lines. I take a new **chalkline** box and discard the line that comes with it. Then I fill its spool with braided nylon mason's line, and I put a loop on the loose end. Braided line costs more than twisted line, but it's stronger and **snarl-free—an** excellent line for straightening walls or checking foundations.

-Robert Francis, Napa, Calif.

#### Dual panel gauge

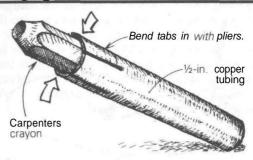


To mark lines parallel to the edge of a piece of plywood or other sheet material, I find a panel gauge is more accurate than measuring two positions and using a straightedge to draw a line through the marks. Many gauges are intended to scratch a line, but in some cases a pencil line is better. This gauge allows for both. The scale of this tool gives it a steady action and a reach of more than 24 in.—half a 4-ft. sheet.

The head of the gauge is a block of hardwood, rabbeted on each edge, with a hole cut squarely to take the stem. Hold the stem by a wedge driven into a slot in the head, as shown. The stem, made of a straight-grained hardwood, is built up at the working end to match the rabbets in the head and beveled for ease in scribing with a pencil. On the other side, make the scratch point by driving in a nail, cutting it off within ¼ in. of the wood and then sharpening it to a point.

-Percy W. Blandford, Stratford-upon-Avon, England

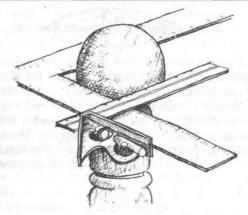
#### Crayon grip



Here's a classy way to house a carpenter's crayon. First, get a piece of ½-in. copper tubing, about 3½ in. long. You can usually find one in the scrap pile after the plumbers have been on the job. With a hacksaw, make four slits about 1 in. long, an equal distance apart in one end of the tube. Bend the resulting tabs in slightly to taper the end of the tube. Now slide the crayon in from the other end, and you're ready to write. This holder (drawing, above) is less bulky and much cheaper than the ones sold at hardware stores.

-Mike Tsutsui, Stockton, Calif.

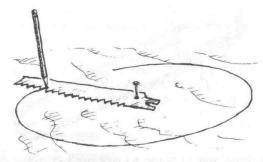
# **Caliper** improvisation



I was laying out a stair rail and needed to find the exact diameter of the ball atop a newel post. My calipers, naturally, were enjoying a day off back at the shop. I improvised by using my framing and combination squares as shown in the drawing above, and I read the diameter directly off the framing square.

—Jim McConkey, Washington, D. C.

#### Sawblade compass



As I was about to install a toilet on a recent plumbing job, I made a discovery. I needed to draw a circular cutline on the subfloor for the toilet flange, but I didn't have a compass handy. I did have my Sawzall, though. I removed its blade, and drove a nail through the hole in the blade into my center mark on the floor. With my pencil resting between two of the blade's teeth, as shown above, I was able to draw a perfect circle—just the size I needed.

-Anthony Revelli, New York, N. Y.

## **Snapping lines**



When snapping a series of chalk lines, as on roofs or siding, two people can hook their **chalkbox** lines at the clip by inserting one line through the other, as shown in the drawing. Worker A reels in the hooks to his end and they snap lines until worker B's line goes dry. Then worker B cranks his line while exposing A's for more snapping. There is no walking back and forth, and no time wasted **rechalking** the lines. **—Jackson Clark, Lawrence, Kans.** 

# lipstick on the job

More than once I've received a look of disbelief when I've asked a helper to get the lipstick from the truck. But the stuff comes in handy in a variety of situations.

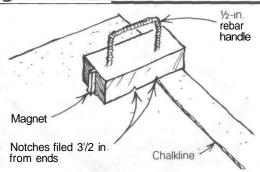
When I need to mark the end of a door latch or deadbolt

strike, I rub some lipstick on the bolt, close the door and turn the bolt against the jamb to locate the proper spot to drill.

Drywall cutouts can be easily found by smearing the edges of the electrical box with the lipstick, hoisting the sheet of drywall into place, and pressing it against the outlet. Pull the drywall away from the box, and make your cutout on the lipstick marks for a snug fit every time. This principle works for paneling and siding too.

-Ernie Alé, Santa Ana Heights, Calif.

#### **Stringline** anchor



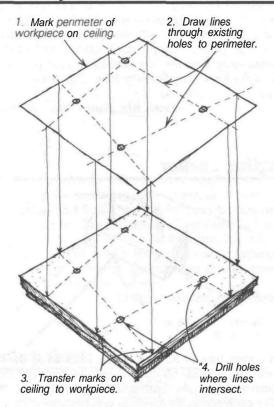
When it comes time to frame a house, I like to do the layout by myself. The solitude affords me time to work out the kinks in the plan without being **barraged** by questions from the crew. The problem is, it's tough to pop **chalklines** on a concrete slab (the typical foundation in my area) when **vou're** working alone.

I solved the problem by getting a heavy piece of steel at a local scrapyard and welding a handle to it so I can lug it around more easily. This brick-size hunk of metal weighs about 20 lb., and it has no trouble anchoring the dumb end of a string line or steel tape. As shown in the drawing above, I affixed a bar magnet to one end of the anchor to secure the hook on a steel tape. Also, I filed notches along the edges of the anchor, 3½ in. from the ends. When the end of the anchor is flush with the edge of the slab, either notch can be used to anchor my chalkline for a 2x4 layout.

Because of its mass and sharp angles, the anchor sometimes gets used as a job-site anvil. It is also useful for tying up the dog when necessary.

-Don Huebner, Austin, Tex.

#### **Eccentric layouts**

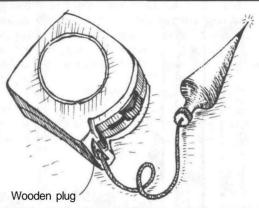


I needed to mount a wooden plate from which to hang a light fixture. I wanted to use four existing holes in the ceiling, which were by no means square to each other, to mount the plate. The problem was how to mark the hole locations on the plate for drilling.

My solution, shown in the drawing above, was to hold the plate in position on the ceiling and lightly draw its perimeter. Then I removed the plate and, using a straightedge, drew four lines passing through the existing holes. These lines extended just past the perimeter line. Next I held the plate against the ceiling and I transferred the marks onto the edge of the plate, as shown in the drawing. When I connected the marks on the plate with a straightedge, the intersections of the lines marked precisely the location of the holes.

-Barry Kline, Cleveland Heights, Ohio

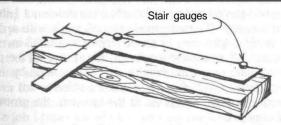
#### Wind-up plumb bob



If you're tired of winding the string on your plumb bob, and you've got an empty spring-wound tape case lying around, try this. First, whittle a wooden plug to fill the tape slot, and drill a hole in it a little larger than the diameter of the string you use. Now remove the old tape and tie your line to the end of the spring. Let the spring and some of the line retract into the tape case, thread the string through the hole in the plug and press-fit the plug in place. Now tie a knot in the line or attach your plumb bob, and you're in business. You can get at least 25 ft. of line in a **25-ft**. tape case, and with a larger-diameter line, the push lock will **still** work.

-Brent Lanier, Pleasant Gardens, N. C.

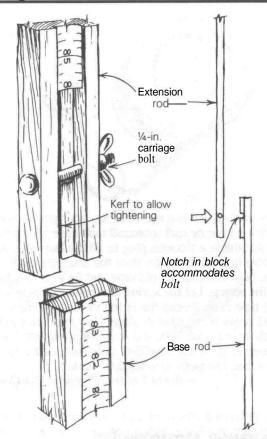
#### Stair-gauge straightedge



I've found that a framing square with stair gauges is a good tool for doing layout on wail plates. I clip the gauges on the long blade of the square, as shown in the drawing. The gauges easily align the blade along the edge of the plates, so that I don't have to worry about the blade getting cockeyed while I do my layouts.

-Will Milne, San Fransisco, Calif.

### Leveling rod



The drawing above illustrates an inexpensive design for an accurate, two-piece leveling rod made from a defunct 1-in. wide tape measure. To make the base rod, begin with a piece of straight, knot-free 1x stock, ripped to a full 2-in. width. I think 7 ft. is a good length for this section of the rod. Use a router or a dado head to cut a 7-in. wide by Vi-in. deep groove in the base rod. Use tin snips to cut a 7-ft. section of tape, and press-fit the tape into the groove. It should stay put.

To make an extension rod, cut another groove in a similar piece of wood, an inch or so shy of 7 ft. long. At one end, deepen the groove to ½ in. for the first 5 in. of the rod and cut a saw kerf 5 in. long in the center of the groove. Next, drill a hole for a Vi-in. carriage bolt, as shown in the drawing. Now you can press the continuing portion of the tape into the groove, starting at the end of the kerf.

At the top of the base rod, glue a %-in. wide block, about 5 in. long and ½ in. thick. This block has to be notched to accommodate the bolt in the extension rod. To use the extension, press the block at the top of the base rod into the groove in the extension rod. Adjust the extension up or down until its tape is even with the top of the base rod, and tighten the wing nut.

When the extension rod is not in use, I turn it upside-down and reattach it to the base rod, out of the way. This rod is accurate, and I think it's easier to read than commercial ones, which cost \$60 or more.

—Jim Reitz, Towson, Md.

### **Erasing chalklines**

I had just snapped a **chalkline** across the face of some very expensive western red cedar paneling when I realized I had measured incorrectly. To lift the chalk out of the very porous veneer without smearing or rubbing it in, I mixed up a glob of stiff **flour-and-water** dough and just dabbed at the chalk. Followed up with light sanding, this made the goof virtually disappear. **—James Bolker, Lyle, Wash.** 

# **Documenting projects**

I have a simple, accurate way to document the placement of the framing, wiring and plumbing parts that go into a construction project: photographs. If I see the possibility of future remodeling, or special use for a particular wall (such as carrying a row of cabinets), I photograph the wall before the drywall installation. If possible, I stretch a tape measure in a corner of the photo to give me a scale. When excavation is part of the job, I take pictures of the water lines, septic systems and other underground utilities.

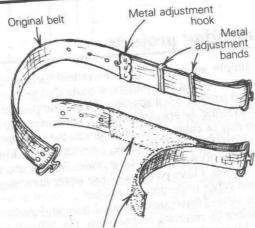
Over the years I have saved many hours and avoided a lot of mistakes by referring to my photo file. When I'm done with a job I leave the photos with the owners in a package that includes the plans of their projects. I retain the negatives in my file.

—Howard Furst, Bellingham, Wash.

# Chapter 2:

# **Boxes, Benches,** Belts and Bags

# Modified adjustable tool belt



Touch-fastener strips allow fine adjusments in belt diameter.

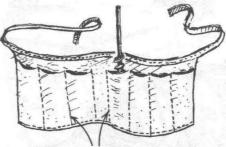
are tired of your tool belt coming unhooked every lime you pick it up, and are fed up with the bands digging into your gut, try the following alteration. Cut on the metal adjustment hook (preferably with a hot-melt cutter to seal the end of the belt). Now it move the metal adjustment bands and throw them away.

To modify the belt, glue a strip of 2-in. wide touch fastener about 1 ft. long to the inside of the belt where the overlap occurs. I used several coats of contact cement for a flexible and tenacious bond. Make sure to put the hook side of the material so that it faces away from your skin. This will make the belt more comfortable if you work in shorts during the summer.

Refined in this manner, your belt can be quickly and accurately adjusted. In my experience, the fastener has never come undone.

—Alan Carrier, Carbondale, Ill.

# Nail-pouch chisel roll



Seams in pouches make slots for bits or chisels.

Many lumberyards give away canvas nail aprons. While the aprons may be flimsy and of little value as nail holders, they can be easily modified into a rollup tool pouch for auger bits or chisels. As shown above, sew some seams into the pouches, and you've got slots for some of your edge tools.

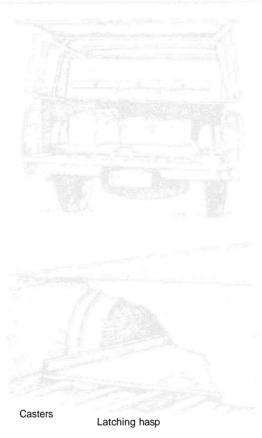
—Samuel D. Jannarone, Upper Nyack, N. Y.

# **Tool-belt tip**

I use separate pouches on my tool belt depending on whether I'm doing rough carpentry, drywall or electrical work, and 1 finally found the perfect belt to hold them—a skindiver's weight belt. These belts are made of nylon webbing, so they are plenty tough. Even so, my belt is comfortable, even when I'm bending or stretching, because I can adjust it up or down on my waist and hips with the quick-release buckle.

—Michael Sweem, Downey, Calif.

#### tool chest



1 was able to solve the problem of keeping my tools locked up and yet accessible in my pickup camper shell with this tool locker.

I mounted a piece of angle iron along each side of the bed, level with the top of the tailgate. Then I cut a plywood shelf about 4 ft. long and as wide as the bed, and bolted it to the angle. I hinged another piece of plywood at the back of this where it would fold down just behind the wheel wells. I added a latching hasp and now had a compartment for my tools as well as a storage space above them. For inside this compartment I cut plywood narrow enough to slide between the wheel wells. I edged the plywood on three sides to keep toolboxes from sliding off, put a handle on the front, and attached casters to the bottom. This gave me a drawer that could be locked in place when the lid was closed. With the tailgate open, this sliding shelf will

reach far enough to give access to everything on it.

Long material can be carried out the back of the camper shell supported by the top of this locker and the tailgate, which are at the same height. The entire system can be removed in minutes if the full use of the bed is needed. Also, I have discovered that the inside of the lid is a good place to store such awkward tools as my 4-ft. level.

-Kevin Ireton, Dayton, Ohio

#### nail hags



When my blue jeans gave out at the knees, I recycled them into a carpenter's apron. To do this, take an old pair of jeans, with good back pockets, and go after them with a pair of heavy-duty fabric-cutting scissors. Cut away the legs about an inch below the pockets, and then up the side seams to the belt line. Now continue the cut under the belt line, leaving the rear half of the jeans and a strap to put around your waist, as shown in the drawing above.

In addition to being free, this apron is guaranteed to fit (assuming you've recycled your own jeans) and the button is already in place.

rgenson, Center Ossipee, N. H.

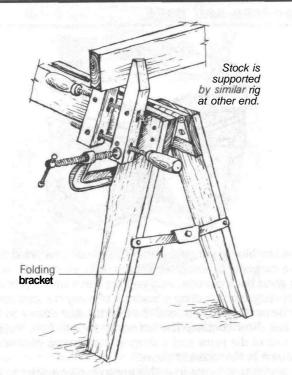
#### Offset handle

I used to carry a standard carpenter's wooden toolbox, with room for hand tools in the bottom, a nail tray on top **and**a wood clothes-pole handle. But I found that when I carried

it, it would bump into my leg if I didn't hold it away from *my* body. This was hard on my arms and legs, so I offset the handle, bringing it an inch closer to my side. Now the contents don't shift to the outside, and the box is a lot easier for me to carry.

-Steve Hunter, Berkeley, Calif.

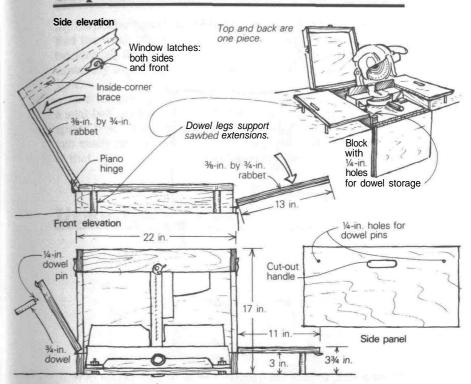
# **Quick clamp support**



One problem 1 have had in working on site is not having a workbench to hold stock for edge-planing and similar operations. I solved this by using a handscrew clamp and a C-clamp in combination, as shown in the drawing above. The C-clamp secures one foot of the handscrew clamp to the leg of the sawhorse, leaving the other foot free for adjustment. This setup works well on conventional sawhorses and on some folding ones. The only alteration I'd recommend on folding sawhorses is to use card-table brackets on each side of the horse to keep the legs from folding or splaying during use.

—Ben Erickson, Eutaw, Ala.

#### **Chop-saw box**



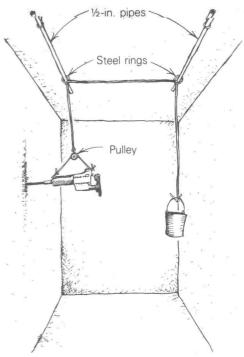
The motorized miter saw is a great tool, but it does have some **drawbacks**—its protrusions make it awkward to cany and its bed is often too short to accommodate the work at hand. I finally built a carrying case for my **Makita** that solves both problems for me.

My carrying case is shown in the drawing above. It's made of ¾-in. birch plywood, and it measures 22 in. square by 17 in. high. Its sides, front and back are all attached to the base with piano hinges. When folded away from the saw, the back becomes a dust deflector and the sides turn into sawbed extensions. The extensions rest on ¾-in. dowel legs, which store inside the box for transport. The ¼-in. dowel pin recessed into each leg fits snugly into a ¼-in. hole drilled in the exterior faces of the side panels when they are being used as table extensions.

When the sides are up and the lid is in place, the box is held together by window latches on the sides and front. Altogether, the box weighs approximately 20 lb. I gladly carry the extra weight, knowing that I will have a good work surface wherever I go.

—Ron Austin, Park Ridge, III.

#### **Tool sling**



Using a sling to support a heavy/tool lin mid-air isnittanew/ idea, but II think the system II use is an improvement over other, methods iI ve seen. Instead off suspending the tool from a single hook, I hang it from a steel ring that slides along a piece of 1/2-in. pipe. This allows me to move from side to side with the tool without the restraint of a fixed mount.

I usually use this technique when Ilim working on a vertical surface with my Bosch demolition hammer. The hammer is on the working end of the rope, and a bucket containing sand is on the counterweight end! In the setup shown in the drawing, I had to remove the stucco from the walls of an old porch. On this job, I used two pipe rails mounted on the ceiling with open-eye hooks. The double pipe system was especially nice in this case because it kept the counterweight laway from the work, and allowed me to move easily from wall to wall.

-Peter Fenerin, PaloAlto, Calif.

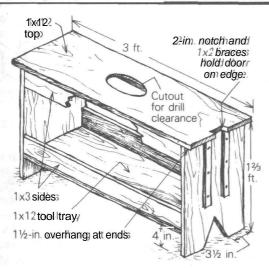
#### Belt-buckle upgrade

My carpenter friends and I have all agreed for some time that the weak link on a fool belt is the clasp. Some twist grip buckles are flimsy, and they can all be clumsy to disengage, especially if you have to remove your belt in a precarious spot.

As a remedy, I removed my old clasp and replaced it with a seat-belt buckle. I tried both the push-buttom type and the spring type, and decided I like the spring type better. Now II can easily remove the belt when I want to, and with one hand at that?

—Evan Disinger Lemon Grove, Calif

# Lightweight workbench

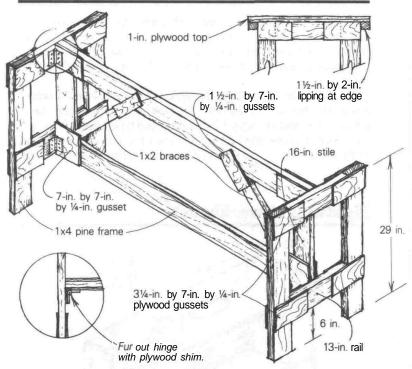


If got the idea for the workbench shown above from a couple off old! West Virginia carpenters: I've been using this design for years now, and the benches are unbeatable for holding work that's being drilled, cuttor nailed. Whenever II do drywall work, I lay two benches on their sides and cover them with planks and plywood to make a low scaffold. It's just the right height for working on an 8-ft.ceiling.

I've found these dimensions to be right for me, but of a course they/could leasily/be altered to suit the individual! They material for each bench costs less than \$10.1 Naill them together with 8d cement coated hails, and you're ready to work.

—Howard Goldblatt McLean, Va.

#### Folding workbench



When I left my amateur standing for an apprenticeship in carpentry, I also left my overbuilt workbench in the basement. One evening, when I was glancing over plans for site-built roof trusses, I realized that the same principles could be used to design a solid, easy-to-carry bench. Glued-on gussets are the secret. They reinforce a lightweight frame where it's needed most—at the joints. For my bench's frame I used 1x4 clear pine. At first I had my doubts about the strength of \(^34\)-in. stock, but I'm glad now that I didn't use 2x4s.

I started by cutting four 29-in. legs, knowing that I'd probably shorten them. Then I cut four 13-in. rails, as shown in the drawing above. This gives a finished width of 20 in. for the end frames. This might seem too narrow, but the bench is very stable in use. The top rails join flush to the top of the legs, and the bottom rails are 6 in. above floor level. This allows plenty of length for trimming the bench to the correct height.

I fastened the end frames together temporarily with corrugated fasteners, coated the gussets with glue and stapled them across the joints. Staples are fine for this; the **strength** comes from the glue.

I made the mid-frame 5 ft. long, but if I had to do it over I'd up it to 5½ ft. The bench would be a little harder to maneuver through tight places, but the extra stability would be worth it. The mid-frame stiles are 16 in., to match the dimension between the rails of the end frames. To resist racking, I added a 1x2 brace at each corner of the mid-frame.

To join the three frames, I used pairs of old 2½-in., tightpin butt hinges—a pair at each end—so that the whole thing folds flat for transport or storage. The hinge leaves on the end frames need to be furred out with plywood the same thickness as the gusset.

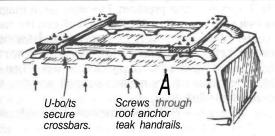
My bench top is made from a 4x8 sheet of ½-in. CDX plywood, cut in half lengthwise and laminated together with yellow glue. I glued the two crowned sides together to ensure that the finished piece stays flat.

Once the top was dry, I glued 1½-in. by 2-in. lipping on each long edge. This strengthens the plywood, holds the top in place and provides a handy purchase for clamps. Register blocks at the end of the top keep it centered on the base.

I've finally gotten its height to the right point for me—I'm 5 ft. 10 in. tall, and the bench is now 27½ in. I can plane comfortably on it, get a knee up to crosscut and still avoid the backache of working on low horses.

-T. D. Culver, Cleveland Heights, Ohio

#### **Custom roof rack**



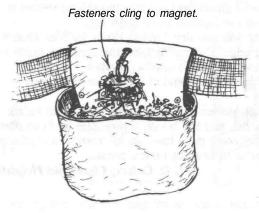
I have a sturdy fiberglass shell on the bed of my pickup truck. While it's handy for storing tools and many supplies, I needed a rack on top to carry oversize cargo. I come from a nautical background, so I wanted my new rack to reflect my long-standing interest in finely **crafted** boats. This led me to the local boat-supply shop, where I found a good selection of teak hand-rails. They come in various lengths, depending on the number of loops in the handrail. Each loop is about 14

in. long. The rails I selected are the four-loop variety.

I attached the handrails to the roof by running screws with 5/8-in. washers through the fiberglass roof from inside the shell. The crossbars are pressure-treated 2x6s, secured to the handrails with a pair of U-bolts at each connection. Now I've got a sturdy, versatile roof rack that looks sharp, with lots of places to anchor a line.

-Chuck Keller, Marblehead, Mass.

# Magnetic nail pouch

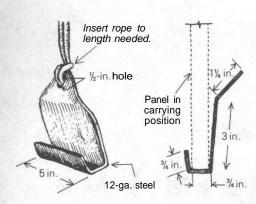


On a large drywall project you can wear out a pair of gloves (or your fingertips) just by picking screws or nails out of your nail pouch. To prevent this problem, I've attached a magnet to my tool belt with a strong rubber band. I placed the magnet over the center of my nail pouch, as shown in the drawing above. Located here, the magnet can be extended down into the pouch, where it picks up a supply of fasteners. Then I can quickly pluck them off the magnet without jamming the tip of one under my fingernail.

-Bob VonDrachek, Missoula, Mont

#### Panel hook

A 4x8 sheet of drywall, **pegboard** or plywood can be a nuisance to carry. With my device, one person can easily maneuver these bulky panels. I fabricated the metal hook shown in the drawing on the facing page from a scrap piece of 12-ga. cold-rolled steel. A short length of rope is threaded



through the ½-in. diameter hole and serves as an adjustable handle. By hitching up on the rope slightly and adjusting the panel's center of gravity I can negotiate stairs, up or down, with no problem.

—George Eckhart, Kenosha, Wis.

#### Nailbag liners

I save half-gallon milk cartons, cut them in half, and use them for nail containers. Their 4-in. by 4-in. size fits nicely into the large bag on my nail pouch. When I'm done with one kind of nail, I remove the carton from the pouch and return it to its storage cabinet. This practice keeps the number of miscellaneous nails in my pouch from getting out of hand.

—Sam Francis, Bozeman, Mont.

# Plywood carrier

I recently had to move a stack of ¾-in. plywood without a helper. After a bit of head-scratching, I worked out a system using a short wrecking bar with a 90° claw on one end. To use the bar, I lift one end of the plywood slightly and swing the claw end of the wrecking bar under the panel. Then I shorten my grip on the wrecking bar, pick up the sheet and use my other arm to steady the load. It's not much different from the usual design for a panel carrier, but my wrecking bar is always on site with me.

-Brad R. Johnson, Chicago, Ill.