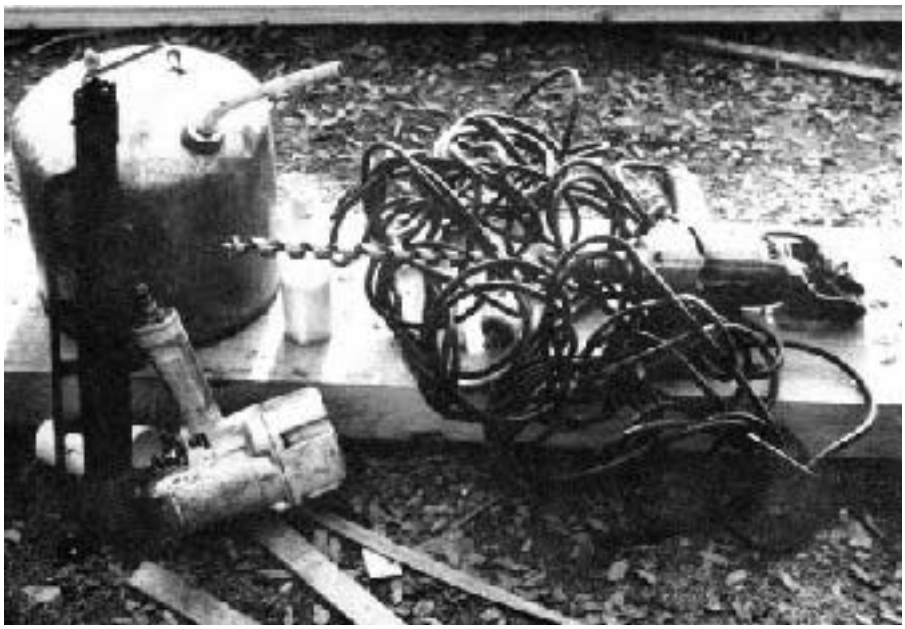
Tools of the Framing Trade



What one framing contractor uses daily on site and why

by Don Dunkley

To frame a typical custom home during the mid-1970s, I would roll up on the job site in my El Camino, pull down the tailgate, and unfurl plans that I had last seen when I bid them. To put the frame together, all I needed was my Skilsaw, extension cord, nail bags, and some seldom-used hand tools that resided in the bottom of a wooden toolbox. Homes were typically built on a slab and came in around 2,000 square feet. They had 8-foot walls, flat ceilings, and 4/12 roofs with a couple of hips.

Times have changed, and so have the custom homes around here. They are no longer built on flat lots (now an endangered species), and they have grown to at least 3,200 square feet (see Figure 1, on next page). They include very conceivable ceiling treatment and window placement known to the design world, a first-floor plate height of 9 feet, a two-story entry, a winding staircase, and literally dozens of roof planes. To be a successful framing contractor, these days, you not only need a "Professional Attitude," but a truck full of tools.

In the next couple of pages I'll go into some detail about the tools I use and why I've chosen them. This isn't intended as a formula for everyone. I started as a framer doing piecework in California's tracts. So even though I now build custom homes, I use production methods, and that affects my choice of tools. So does personal taste, for which there's no accounting. But no matter how or where you work, it never hurts to hear another contractor's recommendations.

The Basics

For remote power, I use a Kubota 5,000 generator. It has an electric starter and automatic idle which keep down the pain in my shoulder and the noise level. It also has oversize wheels that help on uneven ground. I paid $1,400 for it a couple of years ago.

I carry four, 100-foot, 12-gauge extension cords with twist-lock ends (about $35 each) to get the power to the center of the site, and I use lots of lighter cords from there. This also means carrying Y's and adapters (universal to twist-lock and vice versa) by the dozen.

My truck usually has three Skilsaws (Model 77) in it (see Figure 2). Although I require my employees to have their own circular saws, it makes sense to carry spares since they are less than $150 a piece. Two saws can go down in a day with cut cords or faulty triggers.

For anyone who doesn't use worm-drive saws, I won't try to convince you of their superiority. As far as brand goes I've tried others that are arguable lighter or more durable, but I've stuck with Skil. They're familiar, they do the job and, where I build, the price stays consistently low. (They are such a staple that most tool supply houses here us them as a loss leader, selling them at or near cost to lure you into the store.)

Which blade to use is something that elicits strong feelings. For the last six months we've been using Black and Decker Piranha blades. These are thin kerf, carbide blades that give a very smooth, clean cut. We use the 24-tooth version and have had excellent results. I spend about $9 per blade, and most have lasted three jobs even after slicing through the odd 16d nail. In fact, one of my guys clipped an anchor bolt with one not long ago, and it didn't even loose teeth.

When they get dull, I use them for roof sheathing. I love thumbing my nose at the guy who comes around to job sites to sharpen blades. I used to spend $40 a month with this guy and still end up with blades that didn't cut as well as the Piranhas do.

The last tool that comes out on that first day on site is my transit. The typical subfloor we build starts with concrete stem walls that vary in height from 3 feet to more than 12 feet. To get the subfloor level, we use a David White transit with and optical plummet feature because it allows me to place the instrument right on the corner of the stem wall, swing 90 degrees, and shoot in a straight line up a series of stem walls even in a stiff wind that would play hell with a plumb bob. The only feature I wish I had added to it was the automatic leveler – a real time saver.

Floor Systems and Wall Prep

With my foundation walls snapped out, I drill the green (pressure-treated) plates for the anchor bolts with a 1/2-inch drill and a 13/16-inch auger bit. I currently use a Skil motor, but its plastic parts haven't withstood the punishment of the job site. I'll get a tougher model soon, probably a Milwaukee. To clinch down the 1/2-inch nuts, I use a Black and Decker electric impact wrench (they cost about $130). It's a tough little unit and has held up well.

If the floor is girder system, I usually cut the 4x4 girder posts with a Skilsaw. If the floor is big – 2,000 square feet or more – or if the girders are on 32-inch centers, then I cut the 4xs with a chop saw. I use my Makita 10-inch with a 60-tooth carbide blade. We get very smooth cuts with this setup, and the blade has remained sharp for nearly two years. My next chop saw will have a larger blade capacity; it'll probably be the Hitachi 15-incher. One of my guys owns one and I was impressed with what it did one day cutting rake backing.

Once the subfloor is out of the way, we drag out the rest of the support system, including the radial arm saw. This beast – a 12-inch delta – weighs in at a herniating 300 pounds. Not surprisingly, when it's time to pull it out everybody gets real busy doing something else. I've thought about mounting it on a trailer, but the fact that I live on a hillside about 40 winding miles from most of my job sites had discouraged me.

I use a carbide blade on this saw; it cost me $110, but it's worth every penny. To make the saw setup more efficient, I haul around a set of job site tables to hold the saw and flank it on either side (see Figure 3 on facing pages). Made out of plywood and 2x6s, and equipped with rollers (like those on an outfeed table), the three sections are sized to fit in the back of my truck. But unlike the saw, they stay on site at night. The rollers are made of 1 1/4-inch Schedule 40 PVC pipe slipped over slightly longer lengths of 1-inch PVC so the outer pipe spins freely. I cut notches in the top rail of the tables and nailed the ends of the inner pipe into these slots so the "rollers" are all at the

Figure 1. *Houses we frame are rarely on flat lots, and often exceed 3,200 square feet. This one has a two-story curved entry, 18-foot walls in open areas and lots of roof complications.*

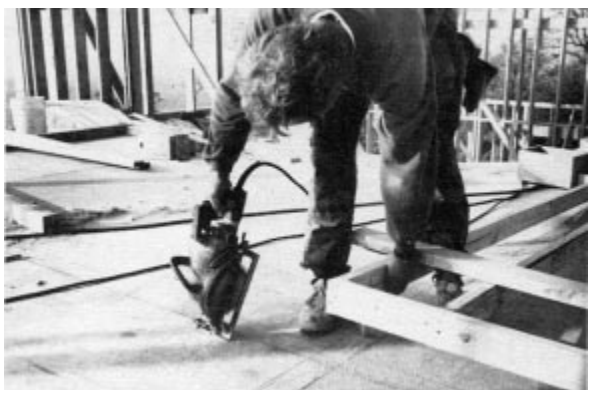


Figure 2. *Production framing crews prefer worm-drive saws because much of the cutting is done in place rather than on benches or horses. Dunkley requires his crew to bring their own saws, but backs those up with three Skil Model 77s of his own.*

Figure 3. *A Delta 12-inch radial-arm saw makes the trip to the job site every morning, but the site-built outfeed tables and saw stand stay put. The rollers are lengths of 1 1/4-inch PVC pipe that spin freely on fixed lengths of 1-inch stock notched into the table rails.*

Dogyu, One Framers Best Friend

The Dogyu hammer *is guaranteed to draw comments for the first time it's seen on a job site. This Japanese import has excellent balance, a standard millface, and weighs in at slightly over 20 ounces. It's a little light and a little short in the handle for some framers, but it has a lot of fans when it's time for pick-up work.*

Probably the simplest, but most personal tool of all is the hammer. In my tool box are no less than seven – a testament to my changing age and style. In my younger days, the True Temper rigging axe was my favorite. Then I went to a 24-ounce Vaughan straight claw, and after that the Vaughan 24-ounce California framer.

Today my hammers are even lighter – all in the 20-ounce range, but their style varies with use. I like a 20-ounce Daluge straight claw for wall framing, but for anything requiring more finesse I use a very odd-looking Japanese hammer made by Dogyu (see photo). We order these from Woodline Japan Woodworker, 1731 Clement Avenue, Alameda, CA 94501; 415/521-1810, 800/537-7820. It has near perfect balance, an extended nose for tight spots, and very curved claws. The handle is a little short for wall framing, but it's great for pick-up. That leaves me holding a Vaughan 999 for most of my carpentry; I think of this model as the best all around hammer made.

My crew isn't as fanatical about their hammers as I am. One of my guys uses a Dogyu exclusively, while another won't touch one and swears by his 24-ounce Vaughan. – *D.D.*

Figure 4. *These two production tools—an aluminum layout stick and a channel marker—can easily be fabricated onsite, or with a little sheet metal in the shop. The layout stick is used to quickly mark 16-inch and 24-inch centers; a channel marker can scribe partition or corner intersections of 2x4 or 2x6 wall.*

Figure 5. *Dunkley and his crew like Hitachi framing guns for their lightness and durability. This gun and another like it have been through three seasons without repair. They take collated, headed nails from 8d to 16d.*

same height. For $2 worth of plastic pipe, it works remarkably well and has lasted for years.

Once the saw is set up, we cut all the headers, sills, cripples, trimmers, and special-length studs. I used to do all this with a Skilsaw, but not anymore. It's no longer unusual to have to whack out a hundred studs at a non-standard length, and nothing beats a radial arm saw for doing this job when it comes to speed, accuracy, and safety.

While the frame package is being cut, I lay out the walls on the floor. The handiest tool I've found for squaring up the layout is the Construction Master II (see Toolbox, JLC 12/89). This calculator deals in feet and inches, and by using the functions of rise, run, and diagonal, I can square up walls of any length. That means I can easily lay out 50 feet of walls to the nearest 1/16ths. Although most of my work is done to 3/16 tolerance – and fudged to 3/8 inch sometimes – this is based on a layout that is as accurate as possible.

For that accuracy to translate to three dimensions when you are plumbing and lining the walls later on, the plates have to be cut and detailed precisely. I use an aluminum layout stick with legs for 16-inch and 24-inch centers to mark my studs. For wall intersections and corners, I use an aluminum channel marker I picked up years ago (see Figure 4). These tools can easily be made on site or in the shop if you can't find them at your tool supply house. To mark doorways and window openings, we use colored keel (lumber crayon). But in the hot valley sun, the wax fades rapidly, and I have been thinking of using marker pens.

Walls

Today's framing demands nail guns. Staring at a 9-foot-high, 40-foot-long wall chock full of headers, cripples, sills, trimmers, and fire blocks can rekindle thoughts of finishing college. A nail gun will at least get you through the task with enough energy left to start the other 40-foot wall.

For air, I use an Emglo, gas-powered compressor (about $850). The front wheel of this wheelbarrow design means I can move it around on site so that its obnoxious sound and fumes are as far away as possible. I carry three, 100-foot air hoses (I pay about $35 each for these locally) to service the guns. Usually, one hose is sufficient for framing walls but when it comes time to nail off the roof, two hoses are a must. Since air hoses have a tendency to be abused, I carry enough couplers and clamps to make immediate repairs.

On the receiving end of the air hoses are two Hitachi NR 83A guns (see Figure 5). These handle 8d through 16d headed, collate nails. The gun is the lightest weight of all framing guns, and that makes a big difference in you're handling one all day long.

The other important factor is how often they jam and breakdown. These Hitachis get few complaints from my guys and have held up for three years with no repairs. At $500 a pop, they're expensive, but well worth it as far as I'm concerned.

I had a flush nailer attachment put on the Hitachis so we can adjust nail depth. This comes in handy for shearwall – so the outer membrane isn't broken – and for exterior trim using galvanized nails.

I also have a Halstead 8d to 10d full-head nailer. This is the first gun I purchased. I bought it to nail shear panel, floors, and roofs. It's a real workhorse, but I tend to use the Hitachis because they are much lighter.

Once all the walls have been framed, and "plumb and line" braces have been attached, the 8-foot level comes out. Currently I use a Master level from Canada (about $145), and for over a year it has remained true. In the past, I have had Empire and MD 8-footers, but both had vials that would come out of adjustment frequently.

Although levels aren't supposed to get dropped and kicked about, in the real world they do. Finding one that will take some abuse is like searching for the Holy Grail. The best I've ever owned was an expensive, fixed-vial German import (Stabila), but these are hard to find in this area. Lately, I've been reading about a high-tech level by Wedge Innovations (Toolbox JLC 1/90) with a resetable digital readout. If the self-leveling feature works as they claim it would be a great advantage.

Roof Framing and Interior Pick-up

Putting the roof together requires more thinking than any other part of the house. Although no job site tool can relieve you of the need to conceptualize clearly in three dimensions, there are several that can make calculations go faster. For several years I have used the Construction Master II to figure my roofs. It helps me weave my way through the thicket of math calculations that are essential in putting together the typical roof where I build – a maze of hips, valleys, bays, turrets, multiple pitches, and the like.

Recently, I was introduced to a calculator that takes the process one step further by supplying all of the lengths and cuts on complicated roofs with very little prompting. This program, call Roof Tech (Roof Tech, 5805 Morgan Place, Loomis, CA 95650; 916/652-5386), is wedded to a Hewlett-Packard scientific calculator and optional, infrared printer. It was written by Bill Rose, a framer in my area who is producing the programmed calculators in limited numbers. Although Roof Tech is expensive at $300 (the printer runs an extra $120), it can really knock down the amount of time spent in calculating members. But buyer beware: you must have a good foundation in roof cutting for the tool to do justice.

We do actual layout on the rafters with a Speed Square. Cutting these members is usually Skilsaw work, but big ridges and purlins can call for more firepower – a chainsaw. Although it's looked upon as the bastard child of the industry, I find it useful. Try cutting a 6x24 glulam without one. As long as a chain saw is equipped with a nice sharp chain and is in the hands of someone who knows what they're doing, it will leave a decent line. They do have to be used with great caution, however. I have an Echo with a 23-inch bar (about $180), and an electric grinding stone that keeps the chain very sharp.

Unless the design gets in the way, I typically wait until after the roof is assembled and sheathed to do interior pick-up (detail work) and ceiling details. This buys us a little shade in the summer and some protection from weather in the winter.

Designers in my area seem to be locked into competition over who can incorporate the most coffered ceilings, corbeled soffits, and high arches in one house. This calls for more traditional carpentry tools, but I allow myself one exception. I use a $1^1/_2$-horsepower, electric Emglo compressor (about $350) to power my Hitachi nail gun in fastening all the pieces together (see Figure 6). Favored by many interior trim workers, this electric compressor contributes quiet, clean air. The unit can't handle the load needed for production framing, but it's just right for inside pick up.

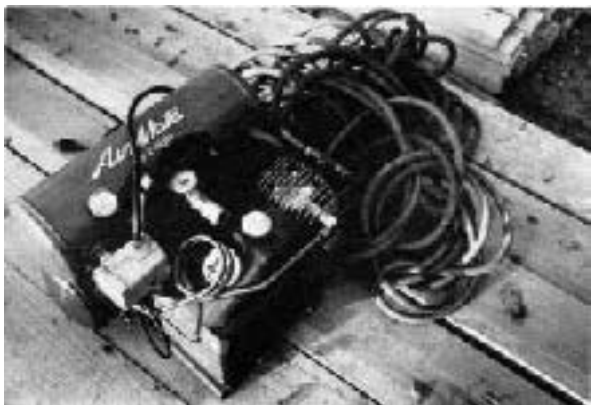


Figure 6. This handy electric compressor from Emglo is used for interior pick-up work. Dunkley sets up a larger, gas-driven, wheelbarrow type when he is framing walls and sheathing.

To build our arches, we use trammels to strike the arc, and a Bosh 1581-VS jigsaw to cut them out. On finished exterior arches we use my old one-horsepower Skill router to cut a nice smooth line. When it wears out, I'll replace it with a plunge router.

But when it comes to pick-up work, the true unsung hero of the job site is the Sawzall (mine, true to the name is from Milwaukee and runs about $130). This tool is a lifesaver. If can cut a window or door header free in a minute, or cut off a misplaced anchor bolt that's sticking up in a doorway. I use it to trim shear panel on a regular basis, and to cut out the plates in doorways.

It also makes money. When the homeowner inevitable wants a larger window, a bigger door opening, or a wall moved, you don't have to invent a reason why the house would fall down if you were to make the change. You can just smile – with change order in hand – and say, "How wide did you want that, sir?" ■

Don Dunkley and his crew frame custom houses in California's Sacramento Valley