

Layout with Lasers

Knowing how to use hi-tech tools will help you sell them

When I first started in construction, I bought an inexpensive reciprocating saw. I was doing a lot of remodeling work, small additions, and adding windows and doors. I didn't have much money at the time so I bought tools as I needed them. The reciprocating saw was one tool I had to have but that cheap saw couldn't cut a straight line from the day I bought it—probably because it vibrated so badly. I was glad when it died before the year was even up. That's how I learned my first lesson about buying tools: Always buy the best tool you can afford.

Why Lasers are a Must

I can't understand it, but many carpenters resist buying new tools. They think it's wasteful to spend money on something new if the job can be done with the tools they already have. Nothing could be further from the truth; lasers are a perfect example.

At the very least, lasers cut layout time in half. Additionally, they make it possible for one man, working alone, to do the work of two. And finally, like any well-engineered tool, they will make work more fun: They reduce aggravation-time, which robs tradesmen of patience and energy, and they help accomplish the job with precision the first time, instead of the second or the third.

FIG. 1: EXCAVATION

Surveyors and commercial crews were the first to use lasers, probably because the high-tech instruments were too expensive for residential contractors. Lasers were used to shoot property lines and grades. Before long, large excavation contractors invested in high-end rotating lasers so that one man, working alone, could do the work of two, checking elevations for proper drainage while operating machinery. Today, automatic self-leveling rotating lasers shoot over 200 ft., with accuracy up to $\frac{1}{8}$ in. Prices range from \$1,000 to \$2,000, which is within the reach of every excavation crew. Used with a detector and a grade rod, all an operator needs to do is listen for a chirping tone to know when they've reached the right grade.



Fig. 1

FIG. 2: FOUNDATIONS

Rotating lasers are also perfect for concrete contractors who form and pour foundations. In the past, using a transit or builder's peep level, one man sighted through the eye piece while a second man held a grade rod. Today, using a self-leveling rotating pendulum laser, many of which cost under \$800, a carpenter can set batter boards and form foundations—even deep footings—while working alone. Setting the instrument in the yard of a small remodel or in the middle of an expansive new home, an invisible laser line can be picked up with a detector anywhere on the job site, even if you're down in a 4-ft. deep footing.

Until recently, detectors have only worked with rotating lasers because the laser beam has to move in order for the detector to “see” it. New pulsing lasers cast dots and lines that flicker unnoticeably, enabling detectors to see them. Introduced in just the last few years by leading laser manufactures such as Stabila, PLS, and Johnson, these tools are revolutionizing our industry. Where in the past a contractor had to own different instruments for exterior and interior work, now one tool can serve both purposes.

FIG. 3: FRAMING

Unlike their rotating cousins, pulsing lasers have no moving parts so they're less expensive and more durable. Rather than a single moving dot, pulsing lasers cast dots and lines, both vertically and horizontally. Though the laser beams can't be seen in bright light, especially over great distances outdoors, they're great for shooting square vertical lines over long distances, which can then be picked up with a detector. Squaring up a house is no longer a time-consuming challenge, even on a steep lot. Moving nails and strings on tall batter boards, checking diagonal measurements with 100-ft. tape measures—all that is a thing of the past.

FIG. 4: ELECTRICAL AND PLUMBING

Mechanical trades, including electricians and plumbers, also profit from using lasers. Whether it's installing a series of switch boxes that are perfectly level so they won't disturb the grout lines in a kitchen backsplash; aligning a row of recessed ceiling lights with a laser line cast from the floor, or installing fire sprinklers in the exact center of future false beams, lasers increase productivity and improve precision. For instance, Stabila's new Holes-in-a-row laser is typical of the innovation found in progressive tool manufacturers. Responding to the needs of creative carpenters and mechanics, this ingenious tool more than halves layout time for drilling joists and studs for pipe and conduit.



Fig. 2



Fig. 3



Fig. 4

Simply drill the first hole, attach the instrument, and follow the laser dot with your drill bit from joist to joist. This laser can be set to drill a row of perfectly level holes or provide precise drainage for plumbing pipes. ➤



Fig. 5



Fig. 6



Fig. 7

FIG. 5: FINISH

Possibly more than any other trade, lasers have changed the way finish carpenters work. One man can now lay out level lines for wainscoting in a matter of minutes rather than hours. Installing shelving for pantries and closets takes half as long using lasers over levels. Elaborate coffered ceilings can be laid out on the floor of a great room, and then transferred up to the ceiling without stretching strings. Windows and doors can be set at exactly the same elevation so muntin bars and casings align perfectly. Using a line laser to find the high point of the floor and the low point of the ceiling makes setting kitchen cabinets foolproof. Lasers eliminate re-work and aggravation.

FIG. 6: DROP CEILINGS

Contractors who install drop ceilings in basements and commercial buildings have long been using lasers, though until the last few years, instruments bright enough to cast a beam around a large brightly lit interior space have been too expensive for all but the largest crews. Now lower-priced affordable lasers are available that fit the budget of even a one-man operation.

FIG. 7: MEASURING

From siding to tile work, lasers have revolutionized the way we work, yet the most dramatic change in construction is now coming around the corner. Laser distance-measuring devices have come down in size and price,

while accuracy has increased dramatically. The best distance-measuring devices are now accurate to within 1/16 in. Within five years, carpenters and tradesmen will be wearing these lasers on their tool belts, alongside their tried and true tape measure.

With a laser distance-measuring device, a carpenter can measure crown molding alone, picking up two wall measurements from one corner, eliminating the need to set up a ladder for every measurement. Baseboard and chair rail measurements can also be taken on two walls from a single corner—with much greater accuracy than with a bent tape measure. Framers can measure plates and tall studs alone without ladders; they can measure rafters, too, without stretching a tape measure across half a house.

For estimates and takeoffs, nothing beats the speed of a laser distance-measuring device, some of which will also calculate square footage, cubic footage, and even add or subtract succeeding measurements.

A good friend of mine, a guitar player, recently told me that he was still angry at the salesperson who talked him into buying his first instrument: “He told me it was the perfect guitar to learn on. But the strings were like baling wire. They were half an inch from the fret board!” My friend said he never knew how easy it was to play the guitar, or how well he could really play until he finally bought a good instrument.

Carpentry is the same. The next time a carpenter or tradesperson asks you for advice about a laser, give him the best advice you can. ■



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