Tool Tips for Metal Stud Work

by Jim Robinson

The typical carpenter knows what to do with a 2x4, but show him a pile of steel studs and he's lost. I got my start hanging drywall on large commercial projects, and it wasn't long before I figured out there was no future in lifting 4x12 sheets of 5/8-inch rock. So I started installing steel-stud partition walls. Now I run a company that does light-gauge metal framing. We still do partition walls on commercial jobs, but we also frame houses. There are differences between residential and commercial work, but the methods for cutting and fastening steel framing members are the same.

Figure 1. For sheathing, the author uses this ET&F model 500 pneumatic nailer to drive 1 1/4-inch-long nails into 16-gauge metal framing.

Cutting

Studs and joists made of steel are no harder to cut than those made of wood. While it's possible to cut steel with an abrasive blade in a hand-held circular saw, it's a lot faster to use a cut-off saw. A typical saw takes a 14-inch blade, draws 13 to 15 amps, and weighs 35 to 40 pounds. There's not much to one of these saws — just a base, a spring-loaded arm, and a motor. The bed doesn't pivot and the arm doesn't tilt, so short of burning out the motor or wearing out the switch, not much can go wrong. Around here, 14-inch Black & Decker industrial models are the standard tool for cutting metal studs. Mine's so old and beat up I can't read the model number anymore, but it still works.

On commercial jobs, all we do is stud work. But on residential projects, we have to cut joists and rafters that are too wide to cut with a 14-inch saw. When we framed our first house, we bought an 18-inch Hitachi chop saw so we could go all the way through wide pieces without having to lift them off the bed or cut from both sides. Also, studs frequently come 10 to a bundle, and it's quicker to gang-cut them than to break the bundle and cut each one separately.

Since then, Hitachi has discontinued the 18-inch saw, although we can still get blades for it. Most 14-inch chop saws can handle 10-piece bundles of 3 1/2-inch studs; if not, you can still save time by ganging several studs together and cutting them at once.

Blades. Metal-cutting abrasive blades don't get dull, but they do wear down. After a while, they lose so much diameter they won't go all the way through the material you want to cut. Nonbearing partition walls are often made with thin 25-gauge studs, so you can cut them for days with the same blade. But load-bearing joists and studs vary from 12 to 18 gauge, and cutting them wears out blades much faster. Top- quality blades, like those made by Hilti, are expensive, but last a long time. It's more cost effective for me to use cheap blades, however, because the guys on my crews throw blades away as soon as they will no longer go through a full bundle of studs. If I buy 100 at a time, my supplier will sell them for as little as $3 or $4 apiece.

Precuts. In theory, it should cost about 20% less to frame with steel than with wood, but a lot depends on the design of the house. If the structure is simple or you do the same design over and over, you should be able to get a pretty good system down. One way to save time is to have steel framing members delivered already cut to length. You pay extra for material, but the labor savings should more than make up for it. We often buy precut studs and joists; roofs can be complicated, however, so we nearly always cut rafters in the field.

Fastening

The biggest difference between building with wood and building with steel is how components are fastened. Driving screws through drywall into 25-gauge studs is easy, but getting them to go through 14- or 16-gauge framing material is slow going, even when the screws have self-drilling tips. I've fooled around with a couple of strip-fed auto-feed screw guns, but never got that excited about them. After enough years of hanging drywall, you can take a handful of screws and roll them one after another down your finger onto the tip of a screw gun. If you're good, you can go nearly as fast as someone using an auto-feed gun. Also, collated screws are expensive, and if you factor in the time it takes to load

Figure 2. Paslode's model 4250/65 CP-STL drives knurled 1 3/4-inch nails into 14- to 20-gauge steel. In cold weather, Paslode's wire-collated coil (inset) holds up better than a plastic-collated coil, which can break or jam the feed mechanism.

them and clear jams, I'm not sure they save that much time.

Erico coil nailer. I have no problem with using a regular screw gun to connect metal framing members, but sheathing is a different story. Before pneumatic nailers were invented to attach plywood to steel framing, we did the job with screw guns. It was ridiculously slow.

Then, in 1994, Erico introduced the ET500 coil nailer (see Figure 1). It was the first pneumatic nailer designed to fasten wood to light-gauge metal framing. Not long after that, Erico spun off its nailer business to ET&F Fastening Systems, which redesignated the ET500 as the ET&F Model 500. It has a depth-control mechanism, and it drives 1 1/4-inch-long ICBO-approved nails through plywood into metal framing up to 16 gauge thick. On those rare occasions when we have to work with 12- or 14-gauge material, we rent an ET&F Model 90 gun from our supplier. The Model 90 drives a thicker fastener that can penetrate steel up to 5/16 inch thick. The nails hold well, because helical knurling on the shafts causes them to twist as they go in.

The Model 500 is light and easy to handle. My only real gripe with the ET&F guns is that the fasteners are plastic collated. This isn't a problem in the Sunbelt, where many steel-frame houses are built, but we build in New England, where subfreezing temperatures can break the plastic collating strips or cause a jam in the gun's feed mechanism.

Paslode 4250/65 CP-STL. We recently tried out a Paslode 4250/65 CP-STL coil nailer (Figure 2). The nails are heavily knurled and noticeably bigger (1 3/4 inches long and .120 inch thick) than the ones we're used to. According to Paslode, the nails for its Wood-to-Steel Fastening System have significantly more holding power than the competition's, although as of May 1997, ICBO approval was still pending. I liked the wire-collated coil, and my crews appreciated the power: The Paslode gun is rated to handle 14- to 20-gauge steel, and it hit noticeably harder than the ET&F Model 500.

Overall, I liked Paslode's gun, but I do have a few minor complaints. One has to do with the adjustable tip, which allows you to control depth of drive at the tool instead of at the compressor. Unfortunately, you need to use a wrench to make the adjustment, and a plastic debris shield makes it hard to get at the mechanism. Also, the rubber tip on the nose of the gun we tried tended to pop off. We couldn't leave it off, because the gun overdrove nails without it, so we ended up having to tape it in place. I also wish the clasp on the magazine was a little stiffer. I found myself bending it back so the cover would stay closed.

Cost Benefit

Paslode's gun is new to the market, and is expected to retail for around $499. List price for ET&F's guns is $695, but most ET&F suppliers will discount them or give them to you for free if you buy enough nails. Long term, the cost of the tool is minor compared with the cost of fasteners, and labor expenses are even higher. Compared with self-tapping screws (about $14 per thousand) and collated screws ($15 to $40 per thousand), nails for fastening wood to steel are expensive at $40 to $55 per thousand. But unless your crew works for free, your labor savings should more than make up for it.

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