Q&A

Q. Mounting a Wall-Hung Sink on a Steel-Stud Wall

I used 25-gauge steel studs to frame the partition walls in an upstairs renovation. Now my client wants to install a wall-mounted lavatory in the bathroom. What's the best way to reinforce and block the wall so I can hang the sink?

A. *Don Wheeler, a custom builder in Anaheim, Calif., who frames primarily with steel, responds:* Though lighter 25-gauge steel studs are plenty strong for framing interior walls, I usually use 20-gauge steel studs. These feel a little more substantial and tend to suffer less abuse around the job site. The following method of reinforcement will work with either size of steel framing.

First, you want to strengthen the wall behind the sink. To do this, "bridge" the studs with a stud or track cut so that it's equal to the length of the wall. Holding this cut stud (or track) in position with the web facing out, mark the top and bottom flanges where they intersect with the wall stud flanges. Using a circular saw fitted with an abrasive blade, make cuts in the flanges on these marks flush with the web.

If you're using 25-gauge material, you can then just bend the cut sections of flange over so that they lay flat on the web. With heavier-gauge material, you'll need to cut the flange sections away with the saw.

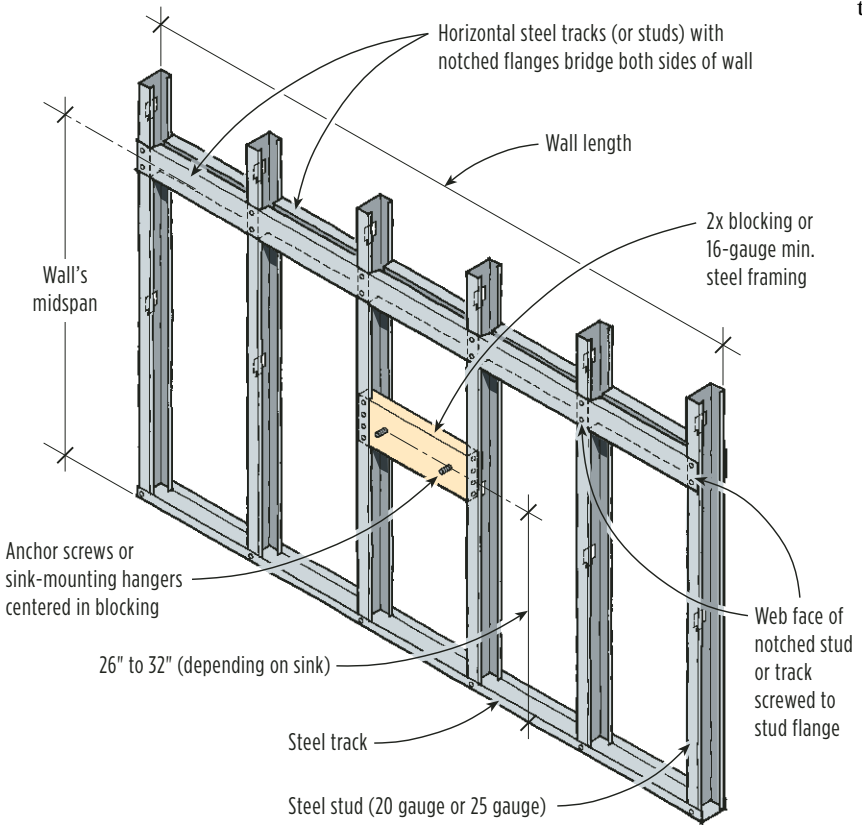
Next, place the stud on the front of the wall approximately midspan (so that it won't interfere with any electrical boxes or other wall openings) and screw the web face to the flanges of the vertical stud wall.

I'd also recommend bridging the back of the wall the same way with another stud. This gives the vertical studs more strength and helps prevent them from twisting.

Now you need to bridge again to create a place to screw in the mounting hangers, this time between the two vertical studs that will support the sink. Be sure this bridging is positioned so that the sink-mounting hangers will be at the correct height. Here, I would not recommend using 25-gauge material; instead, to prevent the hangers from pulling out, use a minimum of 16-gauge framing.

You could also use 2x10 or 2x12 blocking, cut to fit tightly between the two opposing webs. On one side, you'll need to screw through the flange into the end grain of the 2-by blocking; I'd use at least four screws to do this.

On the other stud, you can screw through both the web and the flange (see illustration, left).



Q. Proper Water-Heater Temperature

I recently learned that building codes in my state now require that newly installed water heaters be set at 140°F. But up until now, with concerns about energy conservation and scalding safety, 120°F was the normal setting. Why the change?

A. *Dave Yates, a plumbing contractor in York, Pa., responds:* This initiative actually got its start in Canada, when the Canadian Institute of Plumbing and Heating (CIPH) began requiring 140°F minimum temperatures in storage-tank water heaters to suppress bacteria numbers. This measure is aimed in particular at Legionella pneumophila sero-group 1, the bad boys that cause legionellosis, or legionnaires' disease, a pneumonialike respiratory disease.

Estimates of the number of deaths from potable hot-water system bacterial infections range widely, but 10,000 per year is the middle ground. Roughly 25 percent of all potable water heaters have measurable levels of Legionella pneumophila SG1, which thrive in water temperatures between 95°F and 115°F.

These bacteria begin to die off only when the temperature rises above 131°F — but because of stratification (where cooler water sinks to the bottom), 140°F is the minimum recommended setting for a storage-tank water heater.

You can't contract the disease by drinking or bathing in infected water; you have to breathe in the bacteria, which is carried by fine water droplets.

A mixing valve installed at the water heater reduces domestic hot-water supply temperatures. The outlet temperature of the ASSE 1017 point-of-source mixing valve shown here is adjustable from 80°F to 120°F.

Of course, once you raise water temperatures high enough to kill bacteria, scald protection becomes increasingly important. CIPH now requires an ASSE-certified thermostatic mixing valve at the water heater's outlet, or ASSE-certified 1016 scald-guard faucets or valves installed at each point of use.

A single ASSE 1017 point-of-source mixing valve costs less than multiple valves, but either approach will add to the cost of plumbing a house.

Unfortunately, code changes come slowly in this country, and until now our code bodies have largely ignored this issue. One reason is that a change like this requiring an additional layer of antiscald protection marginally increases construction costs, so it's been opposed by many builders' groups.

Nevertheless, the code changes you've already seen in your state are just the beginning of what will soon become a national standard.

Q. Working Off a Forklift

Is there any legal way to work off the forks of an all-terrain forklift — for instance, in a steel cage that's safely secured to and supported by the forks?

A. *Mike DeBlasio, a masonry contractor in Littleton, Mass., and a member of the Scaffold Industry Association, responds:* OSHA doesn't specifically prohibit the use of forklifts and rough-terrain forklifts to elevate personnel, but there are a number of restrictions that severely limit their use for this purpose.

For one, the manufacturer of the forklift has to specifically allow the use of a work basket, in which case the company typically will offer an approved model as an optional accessory. The width of work baskets is limited by the wheel base of the forklift; according to OSHA and ANSI requirements, baskets can extend no more than 10 inches past either side of the load-bearing tires.

On an 8-foot-wide forklift, for example, the allowable work basket could not measure more than 116 inches wide (96 inches + 10 inches + 10 inches).

These work platforms must meet OSHA scaffold standards in terms of capacity, construction, access, use, fall protection, and training, and the operator of the forklift must be fully trained and licensed.

In cases where the manufacturer does not address the question of whether its machine may be used for this purpose, there's more of a grey area.

First, the employer or contractor needs to either find out from the manufacturer if the forklift was, in fact, designed for this use, or have a registered PE certify that it was. In addition,

the engineer would need to certify that the supported scaffold being used in conjunction with the forklift complies with applicable requirements in terms of capacity, construction, access, use, and fall protection.

Also, these forklift-supported platforms can be used only when the contractor has determined that no other practical options — such as scaffolds, scissors lifts, aerial lifts, or ladders — could be used instead.

Keep in mind that, regardless of the platform design, you can't use a forklift for elevating personnel platforms if this is specifically prohibited by the manufacturer or by the operator's manual.

Q. Shutter Repair

I'm in the process of renovating a home with traditional louvered shutters. Some of them need to have the tilt rod replaced, but I'm not sure how best to reattach the staples that connect the individual louvers to the rod. Is there a special tool that can be used to squeeze the staples in place?

A. *Patrick Martin of Martin Shutters in Atlanta responds:* When my company builds a replacement tilt rod, we use specially modified production equipment to bore a series of holes in the tilt rod that are at the correct depth, angle, and location to receive staples.

Then it's simply a matter of using a pair of needle-nose pliers to push the staples into the holes.

Of course, you don't need expensive machinery or specialized tools to do this; the key is to make the holes with a small-diameter drill bit sized slightly smaller than the staples' wire gauge; this will help guide the staples easily into place. The staples we use measure either 3/16 inch or 1/4 inch wide and between 1/2 inch and 7/8 inch in length.

GOT A QUESTION?

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