Q&A

Q When anchor bolts are out of stock at our local lumberyard, we frequently use lengths of threaded rod that we've cut and bent ourselves. A new foundation subcontractor recently said this is not permissible by code. Is he right?

A *Mac Hampson, a multi-trade building inspector in Wilmington, N.C., and author of* Behind the Walls, *responds:* The foundation contractor is correct. Anchor bolts at the sill plate are not just "something to hold the wall down." They are designed structural links in the load path that connect the wood framing to the foundation and help the building resist wind and uplift forces.

Using plain, full-thread rods bent into an L- or J-shape as "anchor bolts" may feel like a practical field solution, but it often steps outside what the prescriptive residential requirements and the underlying structural design assumptions are based on.

For typical residential construction, prescriptive requirements and most engineered details assume anchors with known, established behavior. Typically, the design assumes:

- Recognized anchor bolts sized and spaced per the approved plans and applicable prescriptive tables (or as specified by the engineer of record);
- Conventional hooked or headed anchor configurations, or listed anchor systems, that have been tested for tension and shear;
- A continuous load path from roof to walls to sill/plates to foundation that is based on known anchor performance in concrete.

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The key point is that the connection must be predictable, which is not the case with a site-bent full-thread rod. There is no verified hook geometry or bend radius tied to tested performance for that rod or bend configuration. There is no evaluation report or manufacturer data supporting "bent all-thread" as a cast-in anchorage method. As a result, the anchor performance assumed by prescriptive provisions or an engineer's design may no longer match what is installed in the concrete.

Even before you get to the concrete, a threaded rod is not the same as a purpose-made anchor bolt: The effective steel area is reduced at the thread roots, and field bending adds variability. On the concrete side, anchorage behavior and failure modes are addressed through ACI 318, an American Concrete Institute framework that's referenced by the residential code for structural concrete where prescriptive provisions stop. That framework is built around standardized anchor types and tested assumptions—not improvised, site-bent rod details.

As with most structural details, if the anchor detail is not shown on the approved plans and is not a recognized prescriptive solution, the burden shifts to documentation. In practice, that means the installer should be able to provide either an Engineer of Record approval (a sealed detail or written acceptance tied to the specific condition), or a listed anchorage system with a supporting evaluation report and manufacturer installation requirements that match what is installed in the field.

If neither exists, the safest and most defensible path is to pause the work, document the condition, and involve the design professional or manufacturer before proceeding.

Q I've never been comfortable sweating copper supply lines (I'm a remodeler, not a plumber). Given the steep cost, does it make sense to invest in a press tool? Are any other remodelers running these tools, and if so, what should I know about them?

A *Jeremy Kassel, owner/operator of Kassel Construction in Glenmont, N.Y., a remodeler of 22 years, and a frequent presenter at JLC Live answers.*

The cost upfront was a concern for me also when I bought mine back in 2018. I had rented the tool a couple of times and decided that the utility of it made it worth purchasing. Renting a tool has a cost not just in the rental charge but also in the time needed to get and then return it. I waited for an upcoming sale at my local supply store and pulled the trigger. The $1,800 still stung though.

A quick description for those who aren't familiar with the tool: A press tool hydraulically compresses a ring within specialized fittings onto the pipe. The jaws of the tool are first lined up over the part of the fitting that contains the rubber compression ring. When the tool is activated, the jaws close completely around the ring and squeeze it until the tool reaches its maximum pressure. The tool then releases, resulting in a secure leak-proof joint that requires less time and skill than threading or soldering. Fittings match common pipe connections, such as shutoffs, elbows, and conversion joints.

There are manual versions of the tool but the one I got was the Milwaukee cordless Force Logic. It works both with brand-name fittings (like ProPress) and the generic press fittings that you see at the box stores. There are also different-sized press jaws that can be switched out on the tool to let you work on various pipe diameters. The tool is most often used to get a fitting onto copper pipes but can be used on other materials, such as black iron, stainless steel, and PEX.

A press tool has a high upfront cost but earns its place.

I haven't regretted the outlay of money: The tool has helped me speed up work and allows me to do things that would have been difficult without it. I am not a plumber, but in my area contractors can do plumbing work if they schedule a plumbing inspection with the city. Of course, you should check what the regulations are in your jurisdiction. Having used these press fittings for a few years now I have not had any failures or issues come up with the work I've done.

The advantages for me have been, first off, no fire. Not having to solder with an open flame in old homes, often in tight spaces, is huge. I am okay at soldering, but it is not something I do every day, whereas pressing a leak-proof fitting on a pipe does not take much practice.

The speed with which the fittings can be installed helps me work efficiently, but the biggest plus is I can get an end cap or shutoff valve installed even if the pipe still has water in it. Often, closing the old main water shutoff would still allow a trickle of water through. Or, I wouldn't be able to get the system to drain well enough and there would still be water, preventing me from soldering a fitting on. Not having to worry about completely drained pipes saved me many times and let the work proceed quickly.

In the homes I work on, we are usually connecting to original copper and then switching to a plastic tubing like PEX (for cost reasons). The flexibility of being able to choose materials is great. I have also ended up using the tool for boiler pipes: They are often the hardest to get all the water out of, but now I can isolate the area temporarily with a shutoff valve and move on with the work and reconnect later.

I think of my purchase of this tool in the same way I view the purchase of a metal brake (or any capital investment for that matter). You can buck up and spend the $1,800 to $2,800, or you can keep renting or going to a metal fabrication shop to get parts made. But once you have the tool, you can be more flexible with the work you take on. You just have to decide if this is a tool that you need, regardless of the cost. In my case, I've recouped the big upfront cost by expanding the type of work I'm able to do.

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