



Quicker Stair Stringer Support

Pylex screw piles might let you skip the concrete

by Calvin Cerilli

Stairs are an essential part of any decking installation. Not only are they functional, creating a more versatile deck by allowing easy access to a yard, but they are also an important part of the design of the structure. Stairs face a lot of use and abuse, too, being exposed to the elements and supporting the weight of people walking up and down. If not properly supported, the stairs can shift or sink into the ground, requiring repair or replacement.

One way to keep them in place is to use 4x4 posts or concrete piers bearing on concrete footings to support the stringers. Another approach is to form and

pour a concrete landing pad and attach the stringers to the pad. But in our area—Winnipeg, Manitoba—frost can reach 50 inches or more into the ground, which requires very deep footing holes and the labor to dig and pour them, and not all our clients like the look of a concrete landing. Instead, our company, Blue Chip Decks, has adopted a different approach for some of our deck stairs that incorporates Pylex adjustable screw piles.

Pylex Screw Piles

Approved in many areas for small decks (always check with your local inspector), Pylex screw piles consist of a 6-inch-

diameter spiral steel disk welded to a powder-coated 1¹/₄-inch-diameter steel tube. They are smaller than structural helical piles, which we install with a machine and use to support decks. Pylex piles can be quickly and easily fitted into the ground using a low-speed, high-torque power drill or by hand using a special T-handle that attaches to the top of the pile and is offered by the company.

The piles are available in 32- and 50-inch lengths, with either fixed or adjustable saddles sized to fit a 4x4 post. We typically use 50-inch piles with adjustable saddles, which are needed if a 24-inch extension is used when a pile

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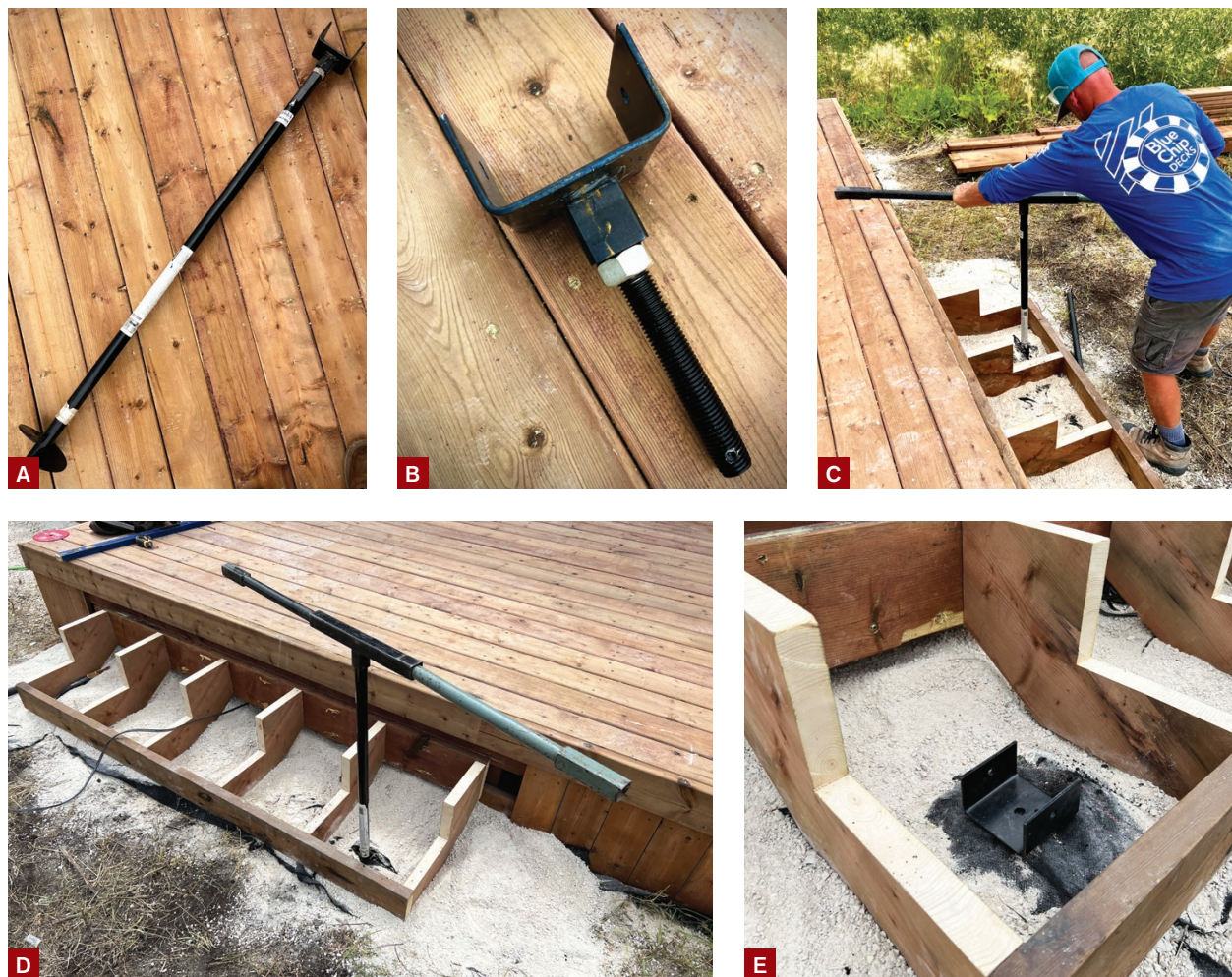


Figure 1. The 50-inch Pylex screw piles (A) with an adjustable saddle (B) that the author uses to support his deck stairs are designed to be installed by hand (C). The manufacturer offers a T-shaped fitting that fits over the shaft of the screw pile; longer lengths of steel rod can be added to the fitting for more leverage (D). Once the pile is embedded in the ground, the adjustable saddle is added to the assembly (E).

needs to be installed deeper. According to the company, the piles can support 5,000 pounds of load in sandy soil, and 3,500 pounds in clay (**Figure 1**).

Installation

We started using Pylex screw piles for deck stairs a few years ago. One advantage over traditional concrete footings or a slab is that it takes only 10 minutes or less to install a pile. In addition, with the extension, the screw piles go far deeper into the ground than usual concrete alternatives, allowing them to provide greater support.

Pylex piles are particularly well-suited for the disturbed soils found near newly-built homes where we do a lot of our work, which allow the piles to penetrate deeply into the ground. For unfamiliar soils, the manufacturer recommends pounding a length of #4 rebar into the ground where the pile will be located to see if any rocks or roots will block its path. The rebar can then be left in the ground and used to guide and reinforce the pile. When the soil is unsuitable for piles, we break out shovels and bars and take a more traditional approach.

A 4x4 post installed vertically can be screwed directly to a pile, but we often install the piles after we've cut the stair stringers and hung them from the deck framing. The stringers are just resting on gravel that we've spread on the ground and leveled after removing sod and covering the ground with landscape fabric. We install the first pile between the first and second stringers at one end of the stair, roughly centering the pile between the stringers.

It usually takes only one man to screw the pile into the ground, though a second



Figure 2. Here, the author is installing double 2-by blocking cut to fit between a pair of stringers (A). After nailing off the stringers to the blocking (B) and nailing the double blocking together (C), he turns the nut underneath the saddle until the stringers are level (D). Then he repeats the process for each pair of stringers until the stair is level from side to side and from front to back.

pair of hands can be used when a little more leverage is needed. We prefer not to install the piles with our big drill, which can create too much torque and actually break the shaft. As we screw the pile into the ground, we occasionally compact the soil under the disk by using a sledgehammer to pound in a block fitted to the saddle.

Once the top of the shaft is flush with the ground, we drop in the adjustable saddle, which can be raised up to 6 inches if needed. The saddle accommodates double 2-by pressure-treated blocking installed horizontally, which we cut to fit snugly between the stringers. After checking that the stringer is level and adjusting the saddle as needed by turning the nut on the threaded shaft, we

nail off the stringers into the blocking. We also drive structural screws through the saddle into the blocking (**Figure 2**).

We install the next pile between the stringers on the other side of the stairs, following the same procedure and making sure that the stairs are level from side to side as well as from front to back. We typically support each pair of stringers with a pile and blocking. For example, a 36-inch-wide set of stairs with stringers 12 inches on-center (for composite decking) would require only two piles. A similar set of stairs that's 60 inches wide would require three piles.

Performance

Over the course of the four years or so that we've been installing piles, we've

found that the structure of stairs supported by them remains more stable than stairs that are supported by wood posts bearing on concrete footings, and they're more capable of withstanding freeze/thaw cycles that impact the soil and accelerate sinkage. Because the screws are placed so far into the ground, they are also far better at withstanding water buildup.

Alongside providing exceptional support to deck stairs, Pylex screw piles are a far more affordable alternative to the more traditional concrete piers or posts supported by concrete footings. We pay about \$40 (Canadian) for each pile. ♦

Calvin Cerilli is co-owner of Blue Chip Decks in Winnipeg, Manitoba.