How To Tile A Shop Floor

By Roger Meihak

I recently decided to tile my shop floor. I thought it would make the floor easier to clean and make the shop brighter. Dirty cement absorbs a lot of light.

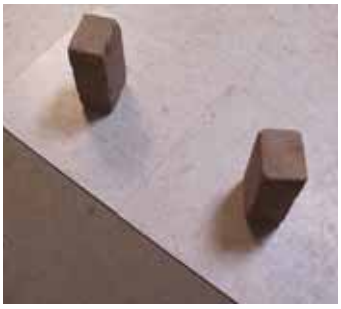
But a shop floor also takes a beating, especially when you work mostly with metal, as I do.

I wondered if it would be possible to use a commercial tile that would stand up, and if damaged, could be easily replaced. The tile I selected was the Congoleum commercial type, CH-14. Each tile weighs nearly 1 1/2 lbs. and has the pattern all the way through. Such tile is somewhat brittle, but it does bend before breaking. The price is also attractive, at 50 to 60 cents apiece for a 12-in. square tile.

I think my method of installation is unique. As I said, I want to be able to replace any tiles that become damaged. I put just a small amount of adhesive under each tile, about the size of a quarter. I found that such a small amount of adhesive in the center was able to secure the tile and as these tiles are heavy and nearly1/8 in. thick, they're not going to curl. The adhesive I used was Locktite PL-3, a construction adhesive.

I used a brick as a weight, putting it in the center of the tile and leaving it in place for several hours.

I've proved my system will work because I carelessly ran an air nailer staple into a tile, chipping it. To make the repair I just broke out the old tile and removed the adhesive (it has to be sanded or ground off) and then replaced the tile, all in just a couple of minutes.



When Meihak tiled his shop floor, he used only a small amount of adhesive under each tile so he can easily replace any that become damaged.

A word of caution on using the PL-3 adhesive: I haven't found any solvent that removes it, including gasoline, so it's best to wear gloves when working with it.

I didn't scrub or wash the floor prior to tiling. I just made sure the floor was clean by using a vacuum and an air gun to make sure there was no loose debris left.

Another advantage of tiling a floor this way is that it lets me tile a little at a time.

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The engine stand can be separated, freeing the hoist up for other jobs once an engine has been pulled. A press built into the hoist frame can bend 1/4-in. thick steel plate.

3-In-1 Shop Tools Built For $300

"We started out intending to build a heavy duty shop hoist but ended up with a 3-in-1 tool that works as a hoist, press, and removable engine stand all in one. It's built strong and rides on heavy duty caster wheels so it can be easily moved anywhere," says Dennis Sensat of Iota, Louisiana.

The 3-in-1 tool was built mostly from scrap material, including a lot of 2, 2 1/2, and 3-in. dia. pipe. The 5-ft. long legs at the base of the hoist and engine stand are made from 2 1/2-in. dia. pipe and slip inside the 3-in. pipes that support the press. By removing a bolt, Sensat can pull out the smaller legs under the hoist and roll the press around separately on 4 wheels.

The hoist has a 5-ft. long reach and is operated by a 3-ft. long, 8-ton jack. The press is operated by a shorter 20-ton jack.

The engine stand sets on a 2 1/2-in. dia. steel post and weighs only 50 lbs., allowing one person to easily lift the stand out of the way. The same post also supports the 8-ton hoist jack.

"Before I built it I looked at a Chinese-built shop chain hoist. I wasn't impressed," says Sensat. "It was built light and had only one upright leg that was made from lightweight square tubing. So I decided to build a beefed-up hoist with two upright legs and mount the 20-ton jack between them so we could also use it as a press. Holes drilled 8 to 10 inches apart into both uprights allow us to adjust the press up or down.

"We've used the press to bend 1/4-in. thick by 6-in. wide flat bar with no problem, and even at full reach the hoist is able to lift a 6-cyl. diesel engine.

"My grandson Hunter helped build it and got some good practice welding. He even welded his initials on it. We think our 3-in-1 tool is built heavy enough to last for generations."

He spent a total of about $300 for the caster wheels, the 8-ton jack, and miscellaneous parts. "If we had bought all three tools separately, we'd have paid at least $1,000 and they wouldn't be movable or built nearly as well," says Sensat.

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Paxton's "made it myself" measuring tool solved the problem of measuring the "stepped bore" design of a housing he was machining.

New Tool To Measure Internal Spaces

When Lee Paxton needed to measure the interior of a set rim, he made his own measuring device. The simple tool was low cost, easy to make, and exact.

"I needed to get an accurate measurement of an inside stepped bore on a housing I was machining," says Paxton. "Standard measuring equipment wouldn't work, so I made my own."

Paxton has a degree in mechanical engineering and worked in the aerospace industry. He started his own company with a few tools in a garage. Today, he and his staff make robotic and other high-tech equipment for some of the largest and most technologically demanding companies in the country. Solving his problem required no fancy equipment, just ingenuity.

The problem was the "stepped bore" design. The deep interior groove to be measured was wider than the surface passage through which the measuring device had to pass. The device had to be inserted, a measurement taken, and then the device collapsed to be removed.

Paxton's solution was to pick up a low cost set of calipers with a digital readout. He recognized that by adding "horns" to the caliper arms, he could get an internal measurement.

"I TIG welded short pieces of welding rod to the ends of the arms," explains Paxton. "It didn't matter how long they were, only that they were fixed in place and short enough to slip inside the bore."

Once inserted into the bore, he spread the caliper arms. When the horns touched opposite sides of the groove, he zeroed out the digital scale. He then collapsed the arms and removed them from the groove.

"I expanded the caliper back until the scale read zero again and measured the distance from one horn to the other with another set of calipers," explains Paxton. "I was then able to machine it down the extra few thousands of an inch needed."

Paxton suggests that anyone needing internal measurements, such as machining snap ring grooves, could quickly and easily make a similar device. He bought his calipers with their digital readout at Harbor Freight. Simply attach horns and measure.

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Pickup's Ignition Module Fires Up Garden Tractor

Paul Peyton didn't want to spend the money for a new solid state ignition module for his 1960's Sears Suburban garden tractor, so he found an internet site that provides complete instructions for an innovative fix. He used the instructions to install the solid state ignition module from an old model 1970's Dodge pickup.

"The tractor had quit running due to a bad module in the solid state ignition. The replacement module cost $185, which I thought was too much," says Peyton, of Huntsville, Mo.

He removed all the tractor's original ignition components and connected an old car anti-lock disc brake sensor to the ignition module. A standard 12-volt automotive coil provides the spark. "The disc brake sensor produces a signal whenever the flywheel passes it and initiates the spark, which goes to the automotive ignition coil and fires the engine," explains Peyton.

"It's a neat fix. I made the conversion about 5 years ago. I paid a total of about $50 for the ignition module and the automotive coil.

"The really neat feature of this setup is that the flywheel can be modified to produce several sensor signals at progressively advancing positions, thereby providing a spark advance. Almost any motion sensor could be used. This system would be ideal for anyone who competes in tractor pulling competitions, because it has the effect of advancing the timing at higher rpm's. That results in more horsepower at higher rpm's."

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