A man with glasses, wearing a red and white checkered shirt and blue jeans, is working in a workshop. He is leaning over a large wooden workbench, using a mallet to work on a piece of wood. The workshop has wooden walls and shelves filled with various tools. The floor is concrete, and there is a brown mat under his feet. Wood shavings are scattered on the mat and floor.

Treat Your Feet

Anti-fatigue mats are an affordable cure for concrete floors

BY STEVE SCOTT

COMFORT

Anti-fatigue mats offer a range of benefits. Mainly, they help cushion your feet and prevent pain and aches. Some say they do this by encouraging subtle movements of your feet and legs that improve circulation.

Any woodworker who spends long afternoons on a concrete floor in the basement or garage knows there is a physical price to pay for enjoying one's hobby. Research confirms that standing on a hard floor for hours at a time will leave you with achy feet, legs, and back. Concrete is a punishing surface.

The solution is to put something more forgiving between your feet and the concrete. In *FWW* #174, we looked at a variety of shop flooring options including interlocking tiles of PVC or wood composite. And in this issue, art director Michael Pekovich shows how to install a shop floor of 3/4-in. plywood over 2x4 sleepers.

But what if you don't want or can't afford a whole new shop floor? The common answer for most people is anti-fatigue mats, those rubbery slabs that go underfoot where you spend the most time standing. With a little digging, I uncovered a wide range of choices. But before whipping out

the Taunton Press credit card, I did a bit of research to see what the experts say.

They really do work

There are no standards—industry, government, or otherwise—for what constitutes an “anti-fatigue” floor mat. In general, they are made of rubber or closed-cell foam and they range from 3/8 in. to 1 in. thick. But studies show that these mats do prevent pain in the feet and legs. One recent study at the University of Pittsburgh concluded that anti-fatigue mats made a significant difference, and especially so when the test subjects stood for more than two hours.

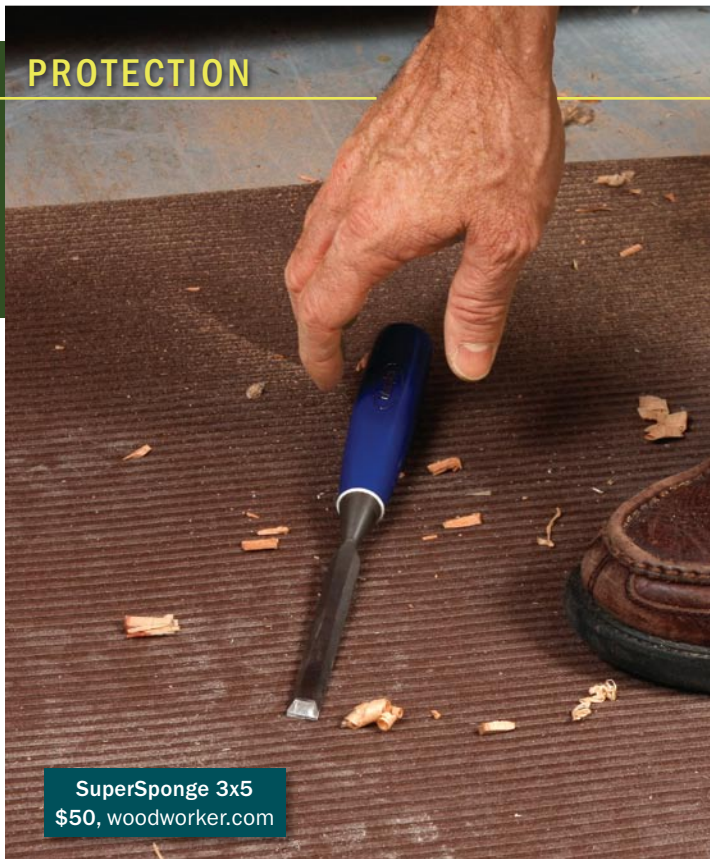
Exactly how they work is a bit of a mystery, however. Apart from providing a simple cushion between foot and floor, one theory holds that the mat's resilience encourages subtle movements of the feet and legs that help promote circulation. This keeps the blood from settling uncomfortably in your lower limbs.

In any case, anti-fatigue mats have become a staple of workplace design, said Tom Waters, a senior safety engineer at the National Institute of Occupational Safety and Health. The mats are recommended for grocery checkers, assembly-line workers, kitchen staff, operating-room nurses—just about anyone who spends most of the workday standing in one place.

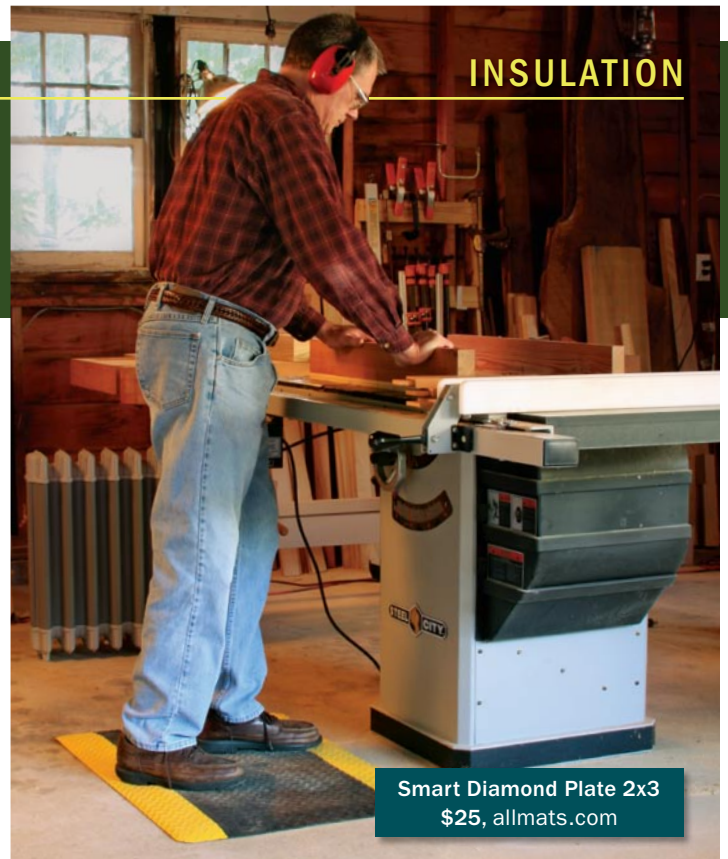
Woodworkers swear by them, too. Marc Adams spent nearly \$4,000 to put mats on the concrete floor at each of his school's 65 student benches. He credits the mats—made of 1/2-in.-thick foam—with making a full day at the bench much less taxing.

Deneb Puchalski considers a mat essential for the hand-tool demonstrations he does for Lie-Nielsen Toolworks. The demos typically take place in convention spaces with concrete floors. Before he began using the mats, he says, “my feet and legs would be a mess.”

Steve Scott is an associate editor.



Soft landing. A mat's cushioning helps prevent serious damage to chisel edges, squares, and other tools.



Cold floor, warm feet. A mat is a barrier between your feet and a chilly concrete slab.

What to look for

Once I found out that mats really work, the next step was to find out whether some work better than others. They do. The good news is that a ½-in. foam mat will probably work just fine for you. Here's what to look for.

MATERIAL

RUBBER

Solid rubber mats are extremely durable, but most don't provide as soft a cushion as foam.

Modular Diamond Plate 3x3
\$44, allmats.com

Mats are most often made either from solid rubber or from closed-cell foam. For the home shop, foam is best. Solid rubber offers terrific durability, but is quite firm underfoot and heavier than foam. These attributes are great for constant use in an industrial setting, but less crucial in a garage or basement. A foam mat provides a better balance of support and cushioning for less-intensive use.

FOAM

A good foam mat has a little more "give" than solid rubber, but enough resilience to prevent pain and fatigue.

Comfort King Supreme 3x4
\$63, woodcraft.com

COVERING

The sponge at the heart of most foam mats wouldn't stand up long to abrasion caused by shoes, dust, sharp chips, and tool edges. For this reason, the sponge is typically bonded to an outer skin of textured vinyl. Marc Adams reports that the vinyl-covered mats in his school have stood up to more than four years of heavy use with no serious damage. Still, for greater protection, some manufacturers offer mats with an armor-like layer of rubber or semi-rigid plastic. These are pricier but easier to sweep off.

SOFT SHELL

A soft vinyl cover keeps the foam free of dust and safe from abrasion by shoe treads. It should be fine for most shops.

Anti-fatigue mat 2x4
\$27, rockler.com

HARD SHELL

A layer of rubber or flexible plastic about ⅛ in. thick gives the foam better protection against sharp edges and abrasion.



Foam at heart. The rubber covering is durable and creates a nicely beveled edge.

Invigorator 2x3
\$39, matmatsmats.com

THICKNESS

Mark Redfern, an ergonomics researcher who authored the Pittsburgh study, suggests looking for a foam mat that's ½ in. thick or so and relatively firm. A mat that's too thin or soft will bottom out, compressing so much that your foot is basically resting on concrete again. A mat that's too thick and soft, he suggests, can make for unsteady footing. Regardless of thickness, experts agree it's worth looking for a mat with gently beveled edges, which are less likely to catch a toe and send you sprawling.

TOO THIN



Not enough cushion. At ¼ in. thick, this yoga mat doesn't put enough foam between you and the concrete.

TOO THICK



Overkill. An extra-beefy mat like this 1-in.-thick model isn't dramatically more comfortable than a ½-in. or ⅝-in. mat. But it will make your footing less stable.

What size and where to put them

The cost-conscious among us may be drawn to a small mat, and this is fine. A well-made 2x3 mat—the smallest commonly available—will cushion your feet just as effectively as a larger one. But a larger mat offers much more maneuvering room. A 2x3 mat might be perfect at the drill press, but it's not the most adequate runway for the back-and-forth travel you'll do at your bench.

If you had enough money, you could put one of these mats at every workstation in the shop. But let's assume you're working on a budget and will be doing this one piece at a time. Consider the type of work you do and where you spend the most time in the shop. Here are our suggestions, in order of priority:

The bench—This is a natural starting place. Any work you'll do at the bench is typically slow-paced (fitting joinery, surfacing by hand, etc.) and requires a lot of time and attention. Because you'll move back and forth from front vise to end vise, a 2x5 or larger mat is a good size.

The tablesaw—The saw's versatility for both milling and joinery means it's in use nearly every time I visit the shop. But it's the joinery cuts—small scale and repetitive—that will have you standing at the saw for a long time. For those, a 2x3 mat fits the bill.

Other tools—Share a smaller mat, or place individual mats at the bandsaw, router table, chopsaw, and drill press.

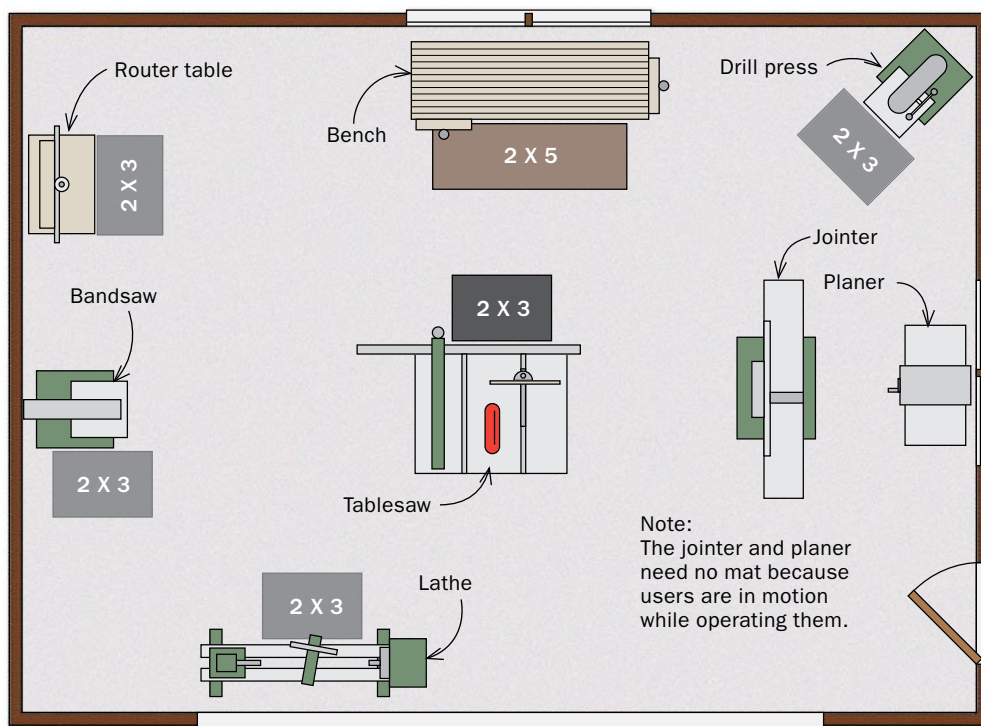


One for the bench. A long mat like this one from Woodworker's Supply (see p. 75 for source information) offers support for tasks like planing long stock that require the full length of the bench.



Supreme SlipTech 2x3
\$47, matsmatsmats.com

And one for the tablesaw. This 2x3 mat offers plenty of standing surface for stationary tasks like cutting joinery or trimming parts to final size.



PLACING MATS AROUND THE SHOP

A mat comes in handy anyplace in the shop where you stand still for extended periods of time while working. The top priorities are the bench and tablesaw, but you should also consider putting mats at the bandsaw, drill press, and certainly the lathe. They are less crucial at the jointer or planer, where you walk back and forth during use.