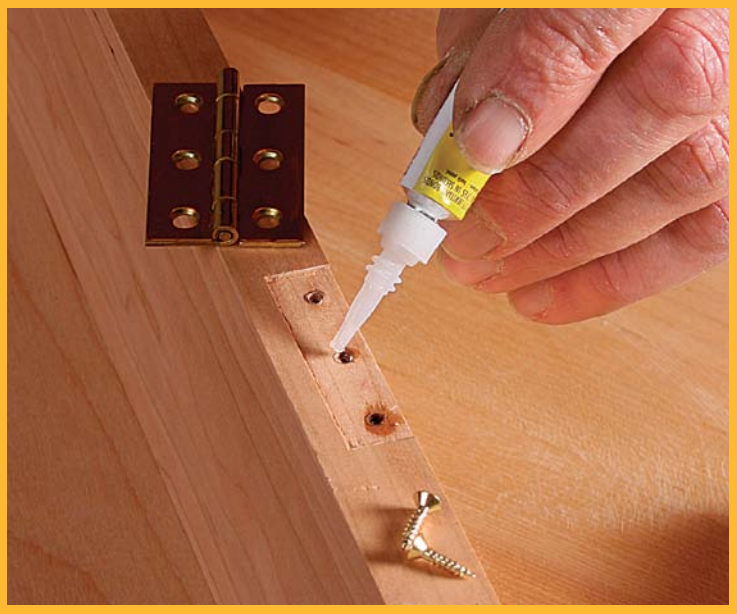
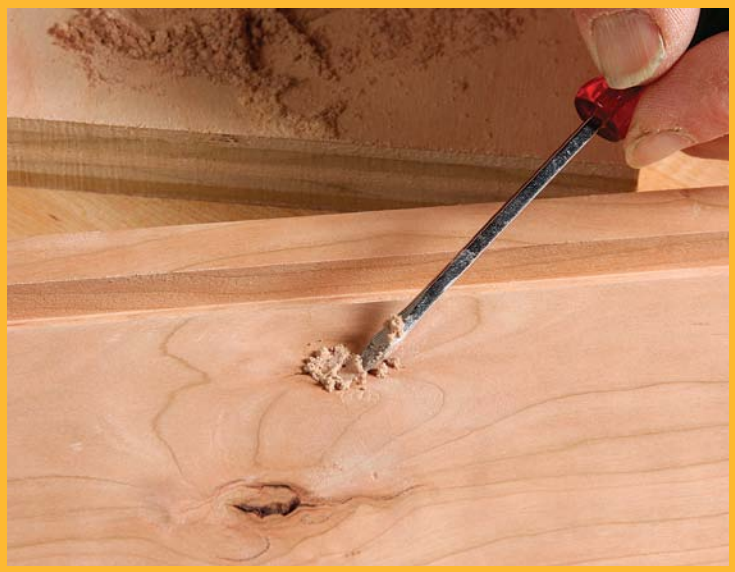
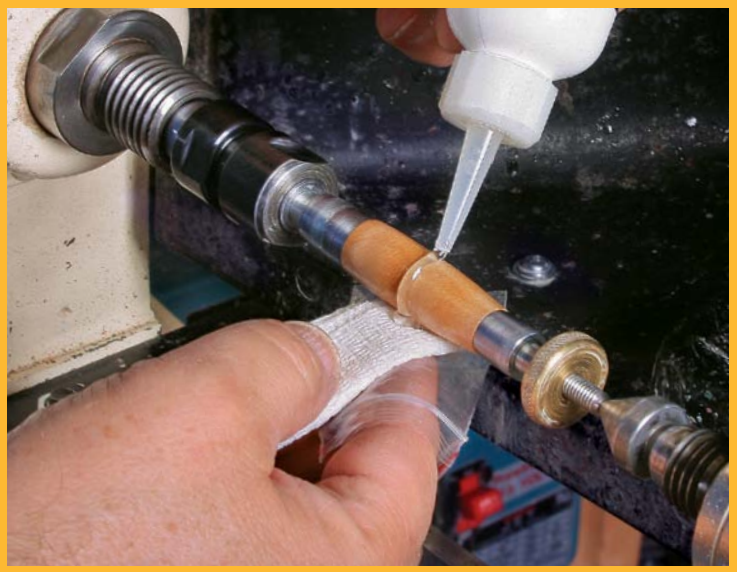
# Super Glue









Photos, except where noted: Anissa Kapsales

# to the Rescue

BY MARK SCHOFIELD

We've all been there. You chip a plate in the kitchen or break off a vital section of wood you are working on. If you want an invisible repair, the area is hard to clamp, or you don't want to wait for the glue to set, the answer is Super Glue.

Speed is the main advantage of Super Glue, whose technical name is cyanoacrylate (CA) glue. A repair or a joint made with CA glue can be shaped, sanded, or finished within about five minutes. Another advantage is that CA glue doesn't add moisture to the wood, so there is no problem with wood swelling. If you sand a joint too soon after it was made with a polyvinyl acetate (PVA) glue, you can end up with a depression after the moisture has evaporated and the wood shrinks.

*Fine Woodworking* asked me to take a close look at this special family of glues to find out how woodworkers use it. While researching this article, I picked up great tips for its everyday uses in woodworking. I even tried a relatively new type of CA glue specifically designed for wood that is threatening to make inroads into yellow glue's long dominance. It's time woodworkers gave CA glue a second look.

## A unique glue

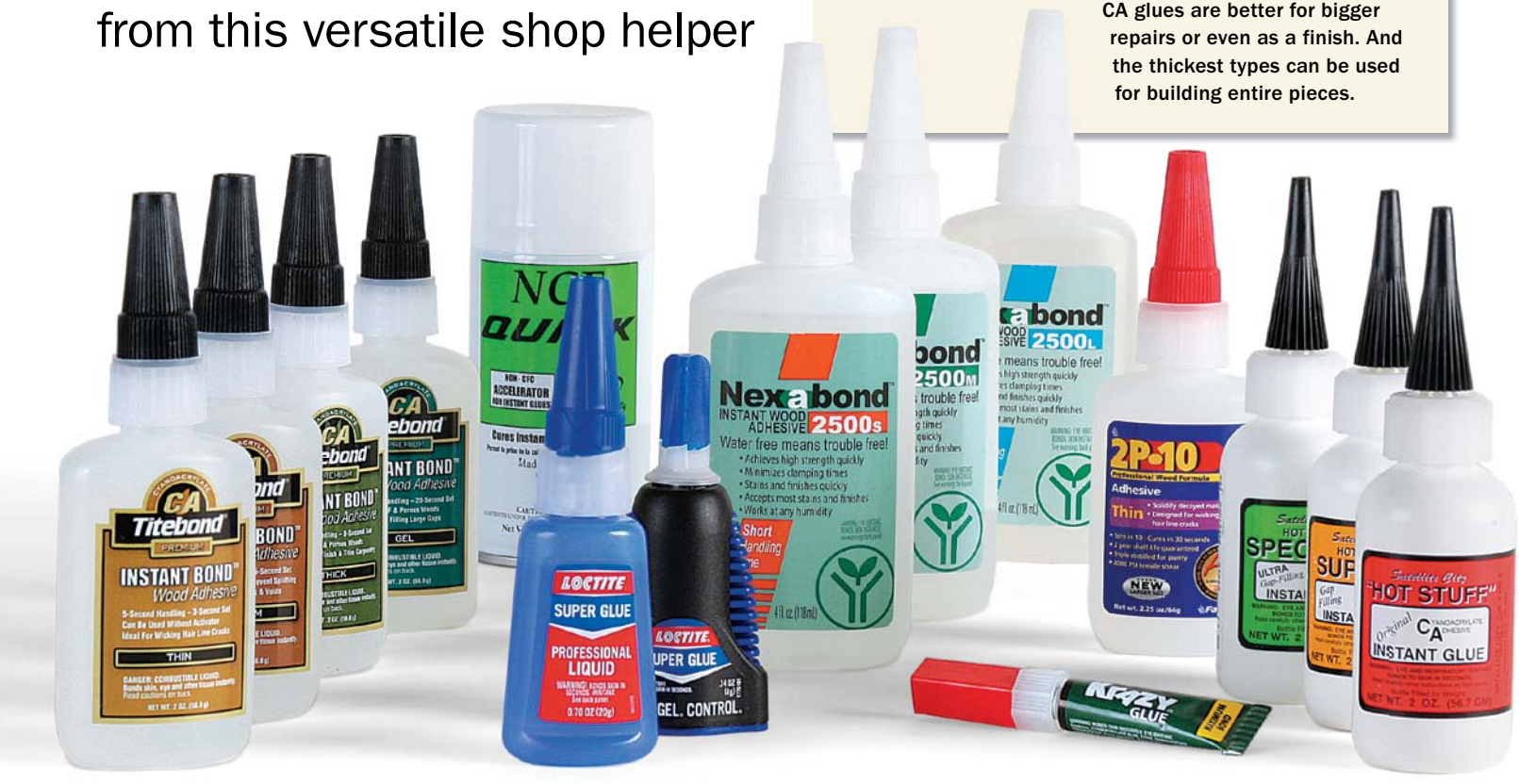
CA glue is an acrylic resin that does not dry, but rather reacts or polymerizes in the presence of water, either in the form of vapor in the air or moisture in the wood. Unfortunately it is this reaction with moisture that causes CA glue to have such a short shelf life; the moisture in a half-used container will cause the remaining glue to harden. CA glue will not work properly on a highly acidic surface such as tannin-rich oak. In a case like this you need to use an accelerator (also called an initiator), either applying it to one surface and glue to the other, or applying accelerator around the joint after the two parts are joined. An accelerator is also handy for repairs, eliminating the need for clamps.

Be extra careful when handling CA glues. Read the directions about what to do if you get

From repairs to assembly to finishing, how to get the most from this versatile shop helper

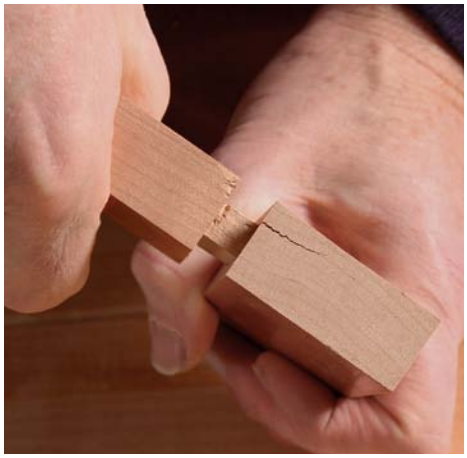
### Many brands and types

**Cyanoacrylate glues are available in a variety of sizes, brands, and viscosities for different tasks, as well as accelerators to hasten curing. Thin CA glue's low viscosity can go places other glues can't, such as hairline cracks. Medium-thickness CA glues are better for bigger repairs or even as a finish. And the thickest types can be used for building entire pieces.**

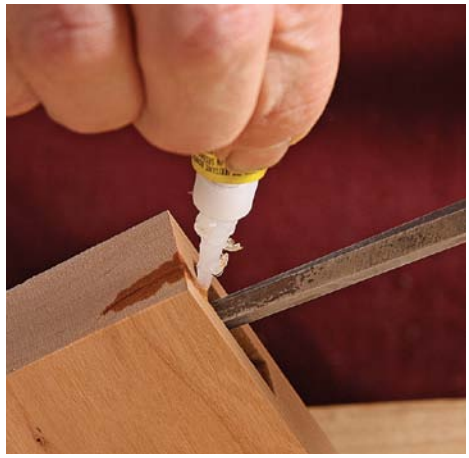


# Repairs are a breeze

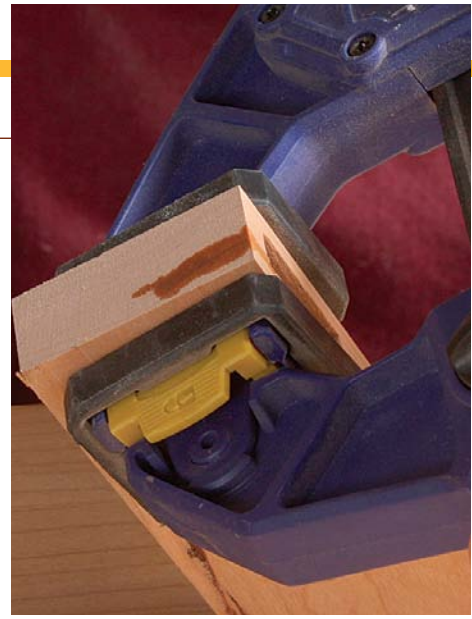
## FILL AND CLAMP CRACKS



***Low viscosity is ideal for hairline cracks.*** *Forcing in a too-tight tenon can crack the wood around the mortise.*



***Open wide.*** *Use a flat screwdriver or other narrow blade to torque open the crack so that glue flows down into it.*



***Clamp and wait.*** *Just a few minutes of pressure and the part is ready to go.*

## REPLACE SMALL CHIPS IN A JIFFY

***No clamps needed.*** *With the addition of an accelerator, CA glue is great for repairing chipped surfaces. Apply the glue and hold the chip in place (right). While applying pressure to the repair, liberally spray accelerator to speed up curing time (below).*

some in your eye or if you glue your skin together. In the latter case, some glue manufacturers tell you to apply acetone, others to hold the skin under water, but in either case gently rub the bonded area back and forth until the glue dissolves. Don't try to pull the "joint" apart, because you risk tearing the skin.

While most generic CA glues have a low viscosity, meaning they are thin and runny, you can also buy medium and thick varieties designed specifically for woodworking.

### A different kind of CA glue

Nexabond, a CA glue designed for woodworking, was introduced a few years ago. Instead of using moisture alone as a catalyst, Nexabond uses sodium and potassium salts found in all kinds of wood. So its performance does not depend on wood's moisture or environmental conditions. Contributing editor Michael Fortune ("Instant glue creates strong bond," *FWW* #241, p. 21) said it works even when his shop is cold and dry in winter.

Nexabond is thicker than most CA glues—indeed thicker than some PVA glues—and it contains additives to reduce the brittleness found in other CA glues. Because it is solvent-free, 100% of the glue stays in the joint, so less is needed than other types of glue. That's good news because it is pricey: 1 oz. of Nexabond costs around $8, 4 oz. is $17 to $23 (it varies by open time). Unlike PVA glue that has to be forced into the wood, clamping pressure for Nexabond is less important.

The glue comes in three variations based on open time: the short type is 1 to 3 minutes (fine for gluing a single joint), the medium is 3 to 5 minutes (better if you are applying a long strip of molding), and the long is 5 to 10 minutes (best for a complex assembly).

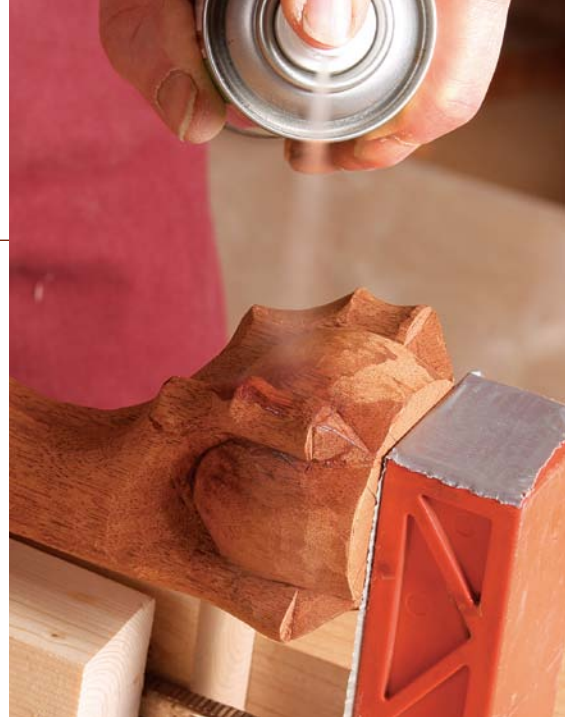
### Make fast, strong repairs

CA glues with a low viscosity easily flow into hairline cracks and checks to produce an invisible repair.

Torn-out chips can be fixed quickly. For small repairs, use low-viscosity CA glue with an accelerator. For bigger repairs, say if a piece of a carving breaks off, use medium CA

## REPLACE BIG CHUNKS WITHOUT CLAMPS

***A carver's friend.*** *If you accidently break off a chunk while carving a detailed piece, medium CA glue is your savior. Apply a generous amount, fit the piece, and hold it down.*



***Hasten curing time.*** *Spray on accelerator and return to carving again in five minutes.*

## FILL VOIDS IN A FLASH

***Pack it, glue it, and spray.*** *Fill the void with wood dust, add glue, and then spray on accelerator. Repeat until the filler is flush or proud of the surface.*

glue with an accelerator. The accelerator eliminates the need for clamps—a lifesaver for an intricate piece—and gets you back to work faster.

### Use it as a clamp

Woodworking instructor Bob Van Dyke uses CA glue as a clamp while making jigs as well as to reinforce the edges of MDF templates in those jigs.

Medium CA glue also can be used as a kind of clamp in conjunction with PVA glue. For example, instead of struggling to clamp the odd shapes and angles on a piece of crown molding, you can instead apply sections of CA glue in between longer stretches of PVA glue. Hold the molding in place for a minute until the CA glue sets, and the CA glue will then act as a clamp until the slower drying but stronger PVA glue sets.

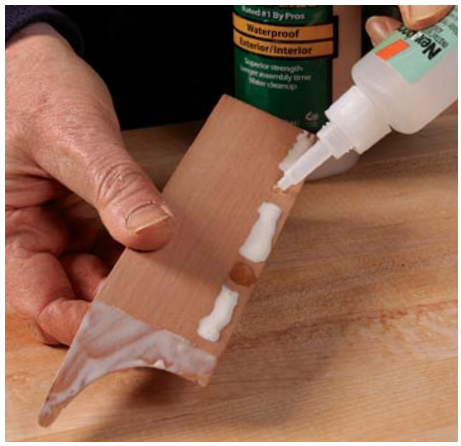
Because of CA glue's low shear strength, one of the first uses for the glue was as a thread locker, which stops nuts from vibrating off bolts but still allows them to be removed if the force of a wrench is applied. In the same vein, turners sometimes use thick CA glue to temporarily attach a small blank or partly completed turning to a wooden

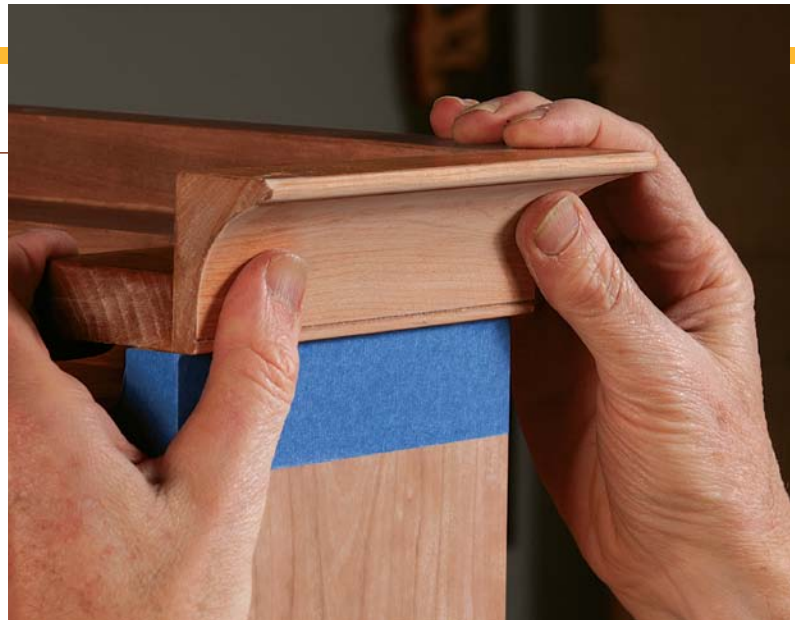
***Sand it flush.*** *CA filler dries more quickly than oil-based fillers. And unlike water-based fillers, it won't shrink as it dries, so you end up with a repair that can be leveled with a sanding block.*

# It works as a clamp

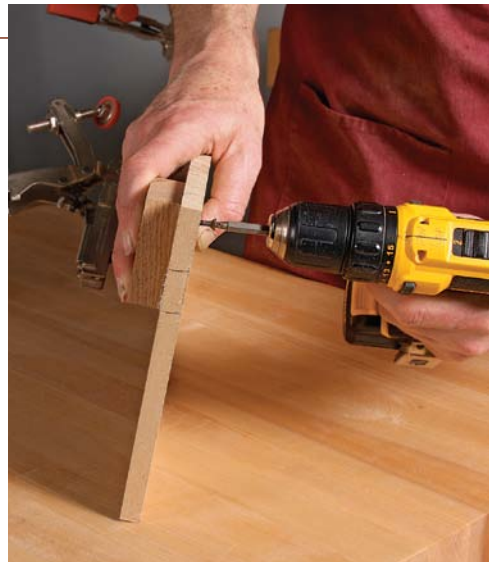
## PAIR WITH PVA GLUE

***Help hold odd shapes.*** *Apply sections of CA glue in between longer stretches of PVA glue. Hold the molding in place for a minute until the CA glue sets. It will then act as a clamp until the slower-drying but stronger PVA glue sets.*



## SECURE BEFORE SCREWING

***Mark your place.*** *To keep parts like the alignment blocks on this jig from shifting while screwing, apply a thin bead of glue around the edges first (left). Use accelerator to lock it in place (center), and finish up with screws (right). The block is more than secure enough to screw it in place from the bottom.*

## TEMPORARY HOLDING POWER

***Glue it on.*** *Use thick CA glue to attach a small blank or partly completed turning to a wooden glue block. Apply glue to the block and accelerator to the turning before holding them together.*

glue block, usually applying glue to the block and accelerator to the turning. You should use this only for blanks that won't be subject to extreme force when being turned. To remove the block, you just cut into it on the glueline and pop off the bowl.

### Fortify vulnerable areas

CA glue is also useful for stabilizing and reinforcing areas of spalted wood, whether they are being turned, planed, or sanded. Similarly, it can be used to stiffen wood fibers prior to the insertion of threaded inserts.

# It also adds strength

Furniture maker Will Neptune uses CA glue to harden and preserve the edges of matboard templates and to reinforce screw holes.

## A fast-drying, stable filler for cracks and voids

When you are inlaying, a high-gloss finish can highlight any slight gaps between the inlay and the surface of the substrate. Trying to fill them with finish is a slow process. CA glue is fast, and you can sand away any that is proud.

Thick CA glue is great for gluing loose knots and, when mixed with sawdust, excels at filling small voids. This CA filler dries more quickly than oil-based ones and unlike water-based fillers, it won't shrink as it dries.

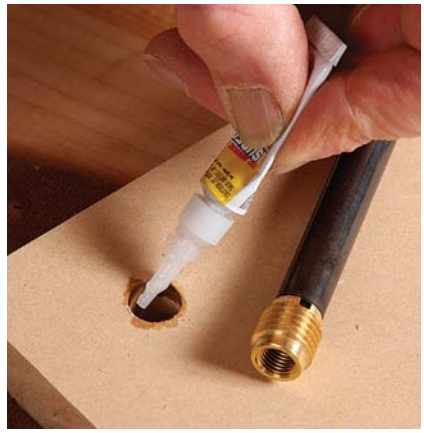
## A super finish

Any brand of CA glue that comes in a medium consistency can be used as an acrylic finish by pen turners. Apply it in multiple thin coats while the blank is turning, and then sand and polish to leave a very durable, high-gloss finish.

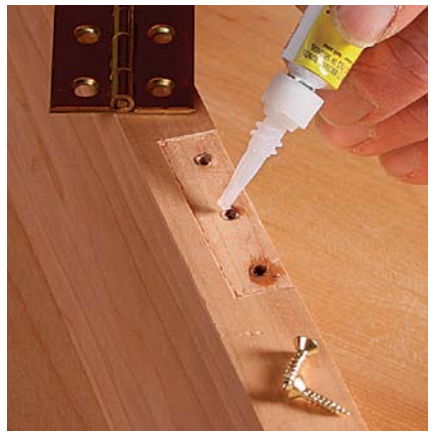
## Building with CA glue

A big question for me as I began my research was whether CA glue can be used to assemble furniture. To verify, I first made a few trial mortise-and-tenon joints to make sure the glue was slippery enough to allow the tight-fitting joint to be driven all the way home before it seized up. I also did a low-tech strength test (see p. 66).

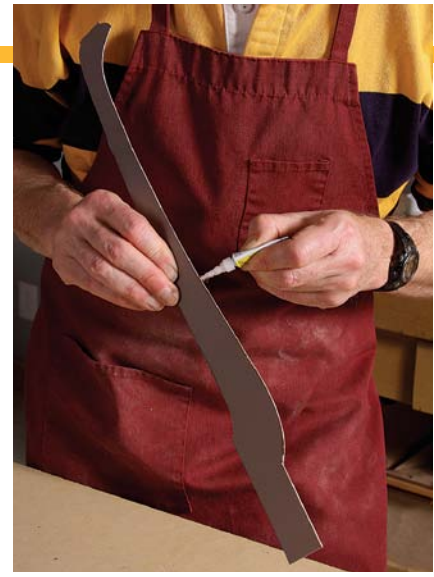
Then I built a small wall cabinet. I used the medium version for the four mortise-and-tenons on the door, the long version for the cabinet box, but the short version for individual joints such as the base



***Lock in a threaded insert.*** *Line the hole with CA glue and install the insert.*



***Reinforce screw holes.*** *Neptune uses CA glue in softer woods where he has to insert shallow screws, such as for hinges.*



***Harden edges of templates.*** *Will Neptune uses mat board to make templates for chair back splats, cabriole legs, etc. He lets thin CA glue soak into the edges and after it dries "as hard as laminate," he can refine the profile by filing or sanding.*

***Fortify soft areas.*** *Spalted wood that has been softened by fungi can be hardened with CA glue.*

**Online Extra**

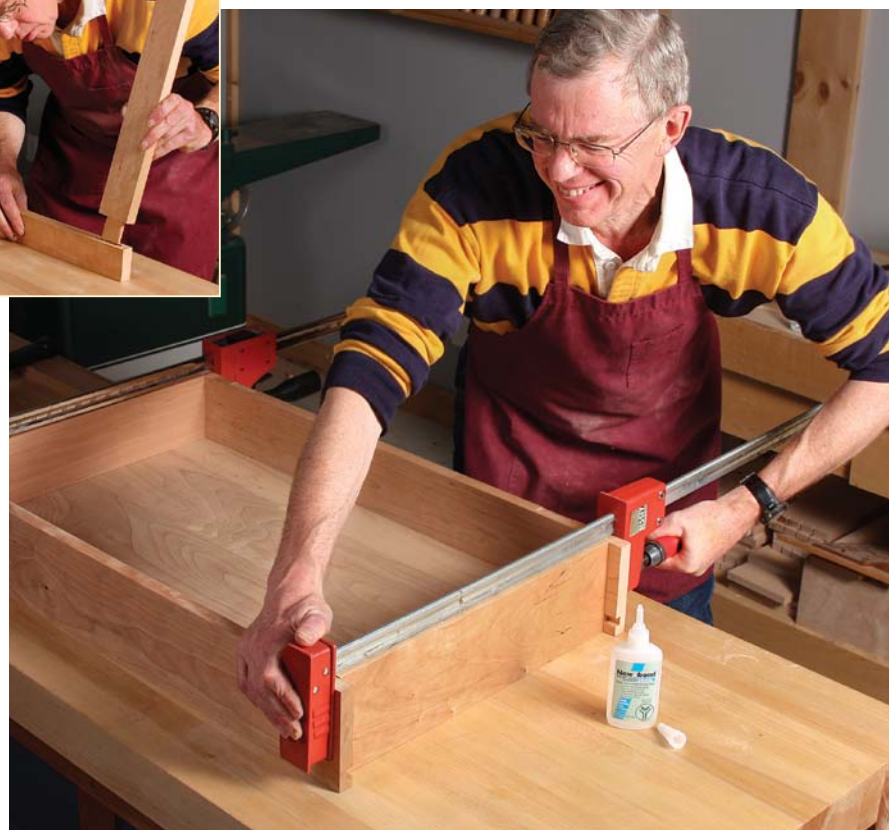
To see a video on how to get your fingers unstuck, go to **FineWoodworking.com/extras.**

TIP

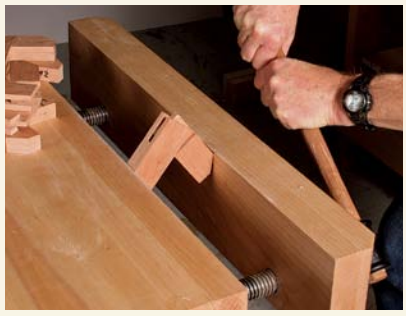
### WORKS AS A FINISH, TOO

**Apply medium CA glue to a turning blank as you spread it with a paper towel. Wear a disposable glove or wrap your finger in a plastic bag. Spray on accelerator to cure the finish instantly.**

Photos, opposite page (top two): John Tetreault

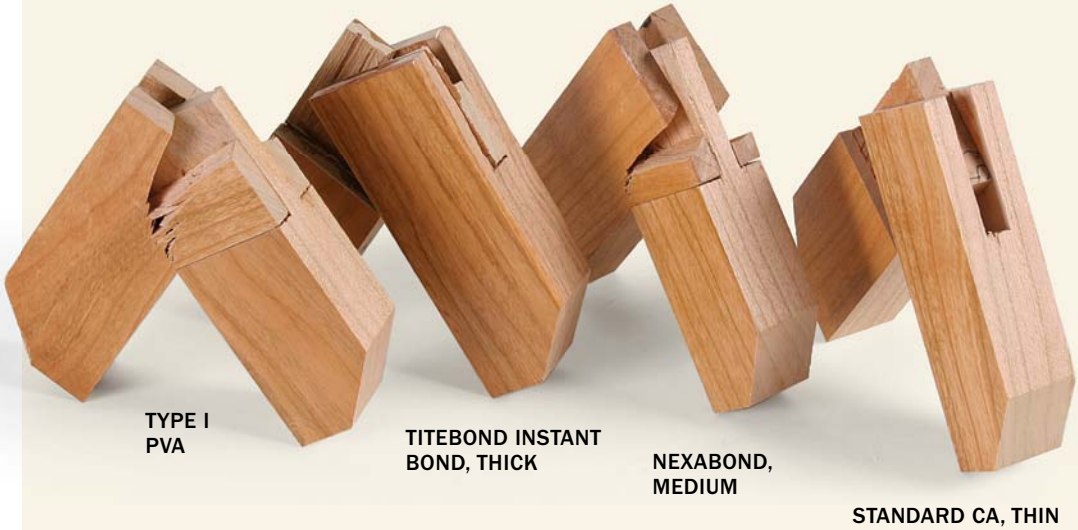


***The Nexabond connection.*** *Schofield built a small cabinet to test Nexabond as a furniture glue. During assembly, he didn't change much to accommodate the new glue. He discovered that CA glues don't require as much clamping force as PVAs, and take a much shorter time to set, but they don't fill gaps.*



## Is it strong enough for the job?

**Schofield made three joints to test each glue, measuring the glue strength using a bench vise. Thin CA glue broke after ¼ turn of the vise handle, the medium version of Nexabond lasted ½ turn, but the PVA glue and the Titebond Instant Bond each lasted about ⅝ turn. While the thin CA glue joints broke entirely along the glueline, the other joints broke due to a mixture of glue and wood failure; in other words, the PVA glue and the two thicker CA glues were all stronger than the wood.**




molding. The only joint failure I had was an unreinforced miter joint on the base molding. I sanded away the glue residue, added a partial spline, and had no more trouble.

### Extend the life of your glue

An unopened container of regular CA glue should be viable for about a year at around 70°F, but if you store it in the refrigerator you can probably double that time, and in the freezer it will keep almost indefinitely. Just don't let the glue freeze, which it does at -8°F (most home freezers operate at around 0°F). Nexabond has a shelf life of 12 months from the date of manufacture at 72°F and at least 18 months if kept in a refrigerator, whether or not it has been opened. Do not store Nexabond in the freezer as it shouldn't be allowed to go below 32°F.

Once the glue has been opened, hot and humid storage will cause it to harden in a month or two, whereas in cool, dry conditions it should be good for at least six months. You can try storing glue in a sealed container with a bag of silica gel (the kind that often gets shipped with electronic goods). If you use a container of regular CA glue straight from the freezer, be sure to let it warm up to match the temperature of the workpiece.

To prevent the narrow dispensing tube from getting blocked, always clear it after use by holding the container upright and tapping it on the work surface before screwing on the cap. Some suppliers sell extra tubes, or you can soak a blocked tube in acetone. □

*Mark Schofield is a former FWW managing editor who lives in Southbury, Conn.*