Iridescent Inlay

Flexible strips of shell bring a sparkle to your work

BY CRAIG THIBODEAU

Rout, trim, and glue

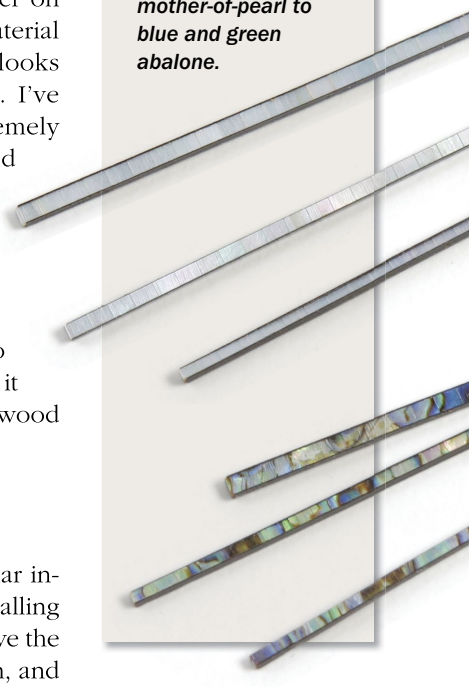
Installation is not much different than traditional inlay. A groove is cut with a trim router, then the strips are trimmed to fit. Finally the inlay is glued in place with cyanoacrylate glue.

Photos: Matt Kenney

String inlay has been used for centuries as a decorative detail on fine furniture. Traditionally, furniture makers have used woods like ebony and holly to create delicate yet beautiful stringing. There are, however, more exotic materials that have been developed in recent years that can be used for inlay, and these complement modern furniture designs wonderfully, adding more visual interest and complexity to my furniture than traditional wood stringing.

One of the most interesting new materials I've been using for string inlay is called ZipFlex, manufactured by Advanced Shell Technology. It's a flexible version of the straight strips of shell-based material used by luthiers. ZipFlex is available in a variety of colors, including white, gold, and black mother-of-pearl, blue and green abalone, and others in a variety of widths.

ZipFlex is made from a laminated shell material called Abalam, which is sliced into narrow strips and then cut into roughly ⅛-in. lengths. These little pieces are held together on a flexible black tapelike material called the matrix (which looks a bit like electrical tape). I've found ZipFlex to be extremely useful when doing curved inlay because it is quite easy to bend around even very tight curves. It works equally well in straight sections and the cost is comparable to straight shell strips, though it is much more costly than wood strips.



Collecting shells. *ZipFlex, from advancedshelltech.com, comes in a variety of sizes, and in colors ranging from solid color mother-of-pearl to blue and green abalone.*

Trim router cuts accurate grooves

Installing ZipFlex and similar inlay is much the same as installing traditional inlay: Cut a groove the width of the inlay, glue it in, and trim it flush to the surface. However, before you do any of that, you'll need to seal the surface surrounding the inlay with several washcoats of shellac (or lacquer). The best glue for this type of inlay is cyanoacrylate, and the shellac protects the wood from being discolored by the glue.

Next is layout, which requires just a few tools. A small adjustable square and a sharp pencil do the job, marking lines parallel to the edge and laying out accurate corners.

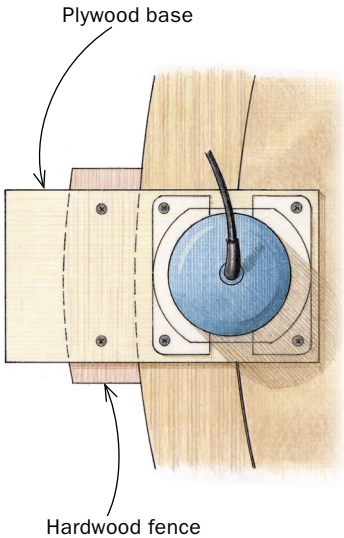
Rout the grooves

Match the bit's diameter to the inlay's width. Bits small enough likely will have a ⅛-in. shank, which means your trim router will need a collet reducer.

Set the bit's cut depth. *After placing the router on two pieces of inlay, lower the bit until it is just shy (0.005 in. to 0.010 in.) of the benchtop.*

Fence keeps the bit on course. *A short, straight piece of hardwood screwed to a long base ensures that the groove is parallel to the edge.*

Curved edges require a curved fence. *Cut the fence to match the edge. This reduces the chance that the router will wander.*



Square the corners. *Thibodeau uses a shopmade chisel (see p. 24) with a profile that's thin enough not to damage the wall opposite the one being pared.*

Drawings: Vince Babak

Cut the stringing

ZipFlex inlay is made from small segments butted end to end. This is not a problem for square cuts, but miter joints should be cut entirely within a single segment.

Lay out for length. *Before cutting the inlay to length, place pieces beside the grooves, overlapping the ends, to get a sense of how much inlay is needed and where joints will fall.*

Cut miters with a model-maker's saw. *A guide kerf in the fence against which the inlay is held ensures an accurate cut.*

Slice and snap. *Square cuts are best made with an X-Acto blade. After marking the inlay's length, score across its top face with the blade (left). Then gently bend the inlay upward, supporting it on both sides of the score line (right). This creates a clean break, bringing the inlay to final length.*

After layout is complete, it's time to cut grooves for the inlay. I use a trim router for this. ZipFlex and similar inlay are very narrow, so you'll need at least one specialty bit. I've found that the solid carbide spiral downcut bits from Stewart-MacDonald (stewmac.com) cut well with minimal tearout. The bits have ⅛-in.-dia. shanks, so you also need a collet adapter.

ZipFlex is typically 0.055 in. thick, and because it should be inlaid slightly proud of the surface, I rout grooves that are a hair shallower than that. To set the bit, I place the router on top of two strips of inlay and lower the bit until it's just above the benchtop.

With the bit's cutting depth set, rout the grooves. For grooves along straight edges, a simple wooden straight-edge attached to the router base is all it takes to guide the router. When routing along curved edges, I make a fence shaped to match the edge. The bit leaves round corners, so square them with a small shopmade chisel (see Handwork, pp. 24–28).

Cut corner joints, then trim to length

Clean out any dust or chips in the grooves, and then lay strips of inlay alongside the grooves, with their ends

Glue

Cyanoacrylate is the best glue for modern inlay materials like ZipFlex. It bonds well with the inlay and dries very quickly.

Glue goes in the groove. *Use a medium thickness cyanoacrylate glue. A needle tip on the bottle gets the glue into the groove without getting it on the table's surface.*

overlapping. This extra length leaves room for cutting the strips to length.

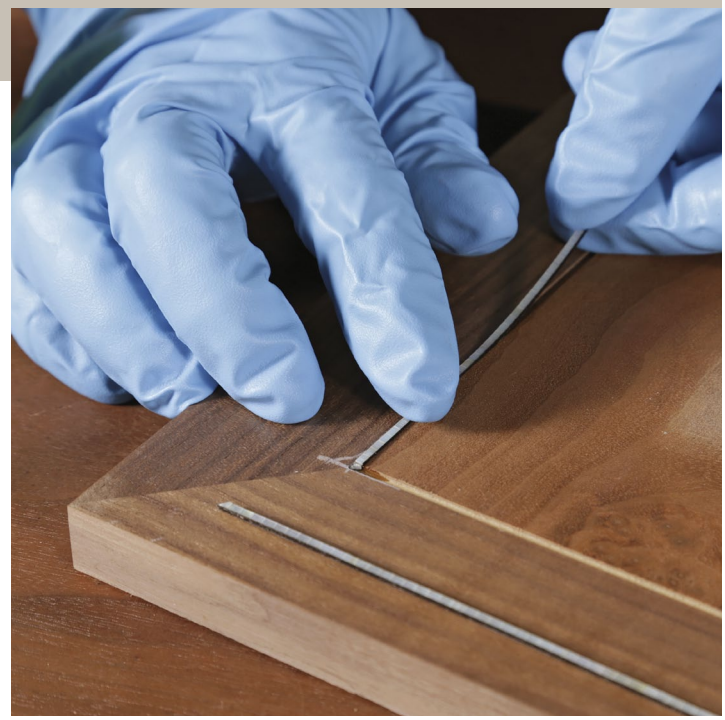
Start by cutting the miter joints in the corners. ZipFlex is made from short segments butted against one another, so when cutting a miter it's important for the joint to be contained within a single segment. It just looks better than when the cut spans two segments.

I use a model-maker's handsaw and a small saw hook to cut the miters. Start the cuts with a light stroke, and exert pressure on the inlay as close as you can to the kerf so that it doesn't move during the cut. Cut all of the miters and fit them together in their grooves to ensure the joints close tightly.

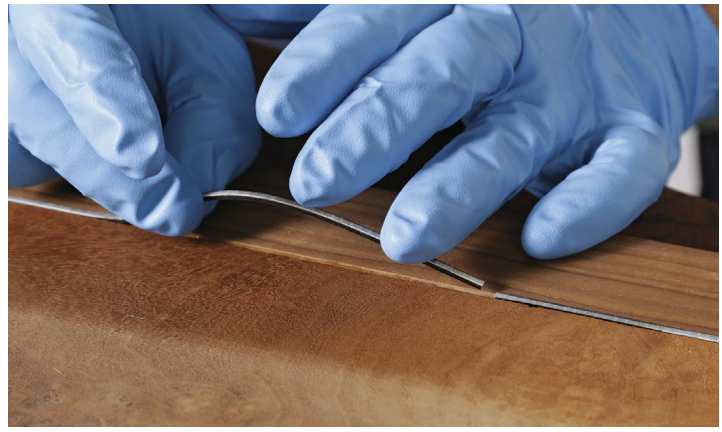
When two pieces of inlay meet somewhere other than a corner, I cut them to length by first scoring the top face with an X-Acto knife and then snapping them at the score line. I do this with the strips dry-fitted into the groove, lifting the end of the inlay and placing a scrap of wood underneath when I score it.

Quick-drying glue secures the inlay

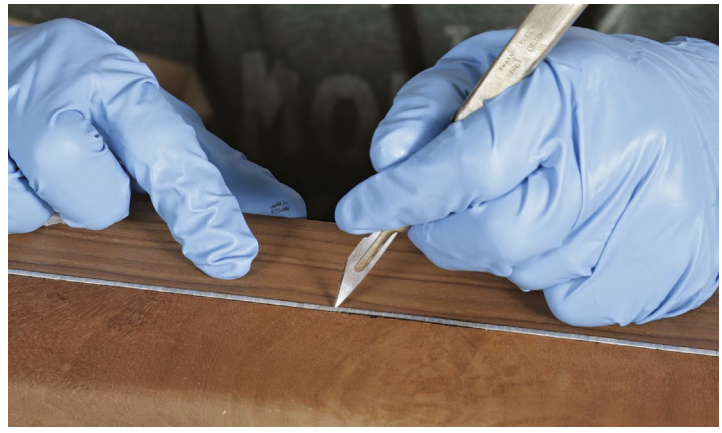
After all of the inlay has been mitered and cut to length, you can glue the strips into the grooves. The best glue for these modern materials is cyanoacrylate. Lay down a small bead of glue in the bottom of the groove. Insert the inlay strips, starting at the corners, working toward any butt joints in the middle. Take care to press the strips down fully into the groove. If the inlay gets caught on the edge of the groove, gently lift it, smooth



Press the inlay. *it should take no more than finger pressure to seat the inlay fully in the groove.*



Flex the last piece. *Butt the end of the last piece against the end of the adjoining piece, and then press down on the inlay. This technique pushes the two ends together tightly, making for a gap-free joint between them.*



Seat unruly inlay. *Should the inlay rise up, press it back down with the point of an X-Acto blade. The cut made by the knife is so fine that it doesn't show up after a finish is applied.*

Glue again

Flood the surface with glue. *Complete the glue-in by flooding the surface with a thin cyanoacrylate glue. A thin-tip nozzle keeps the glue on top of and immediately next to the inlay.*

Speed up the drying. *Holding the can about 12 in. above the table, spray accelerator over the glue to set it immediately.*

Sand flush

A hardwood block wrapped in 100-grit paper makes quick work of the dried glue. *If the inlay is more than a hair proud of the surface, you'll need to change paper often, because ZipFlex can contain pearl and abalone, both very hard materials.*

Sand the inlay flush. *Wrap blue tape several times around one end of the sanding block (top). This raises the taped end off the surface and focuses the sanding on the inlay, keeping the sandpaper off areas that don't need sanding. Thibodeau uses a vacuum hose to collect dust as he sands the inlay level with the top (above).*

the inlay, and press it back into the groove. Next, flood the surface with a thin cyanoacrylate glue, using a fine-tip nozzle to direct the glue onto the top of the inlay. Try not to touch the inlay with the tip. There should be a full layer of glue over the inlay. It often takes several passes to get full coverage. Check that all of the inlay is still completely seated in the groove. If it's pulled up anywhere, press it back down with the tip of a scalpel. Now, spray a fine mist of accelerator over the inlay, and leave it to cure overnight.

The following day, it's time for cleanup. I use 100-grit sandpaper glued to a block of hardwood that's 1 in. thick by 2 to 3 in. wide by 10 in. long. Wrap tape around the sandpaper and block at one end. This keeps the sandpaper off the surrounding surface so that you're sanding only the dried glue. Vacuum the dust frequently. After all of the glue has been sanded off, you can prep the surface and finish as you normally would. □

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