STAR GUITAR

Woodturner PRO

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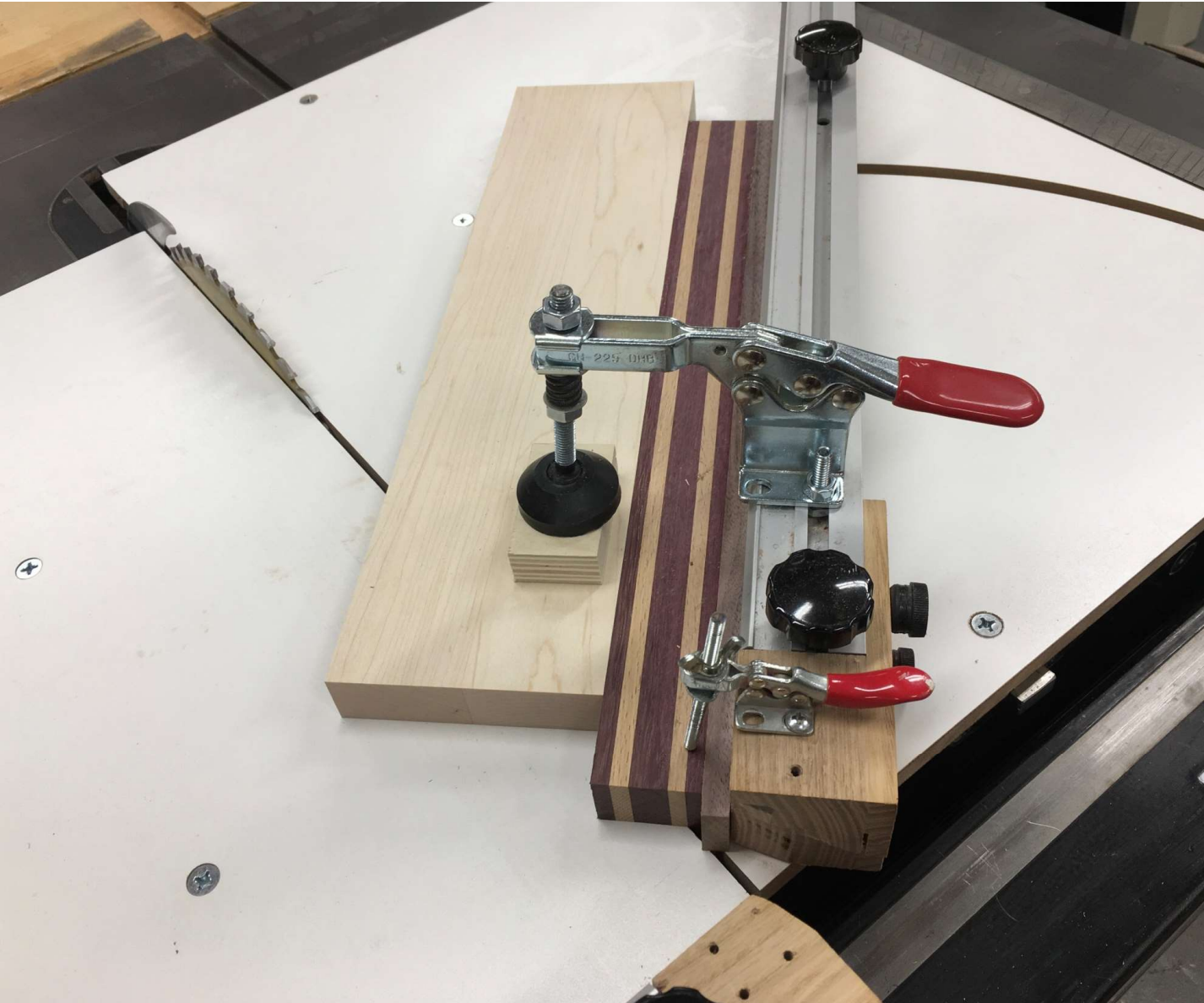
LAMINATED BOARDS FOR GUITAR BACK

Intent is to make four units where each unit will consist of two inverted chevrons.

Boards are 1-1/16'' thick and once completed will be cut into three 1/4'' slices. This will result in 12 radial wedges and since only 8 are required, I will pick out the 8 that have the best match.

FIRST CUT

The angle for cutting all strips is 45 degrees. This angle is not critical.

CUT ALL STRIPS

Strips are cut 2" wide.

MINIMAL WASTE IS THE GOAL

I used SketchUp to determine the exact amount of wood that would be needed to make four strips. As you can see, there was almost no waste at all.
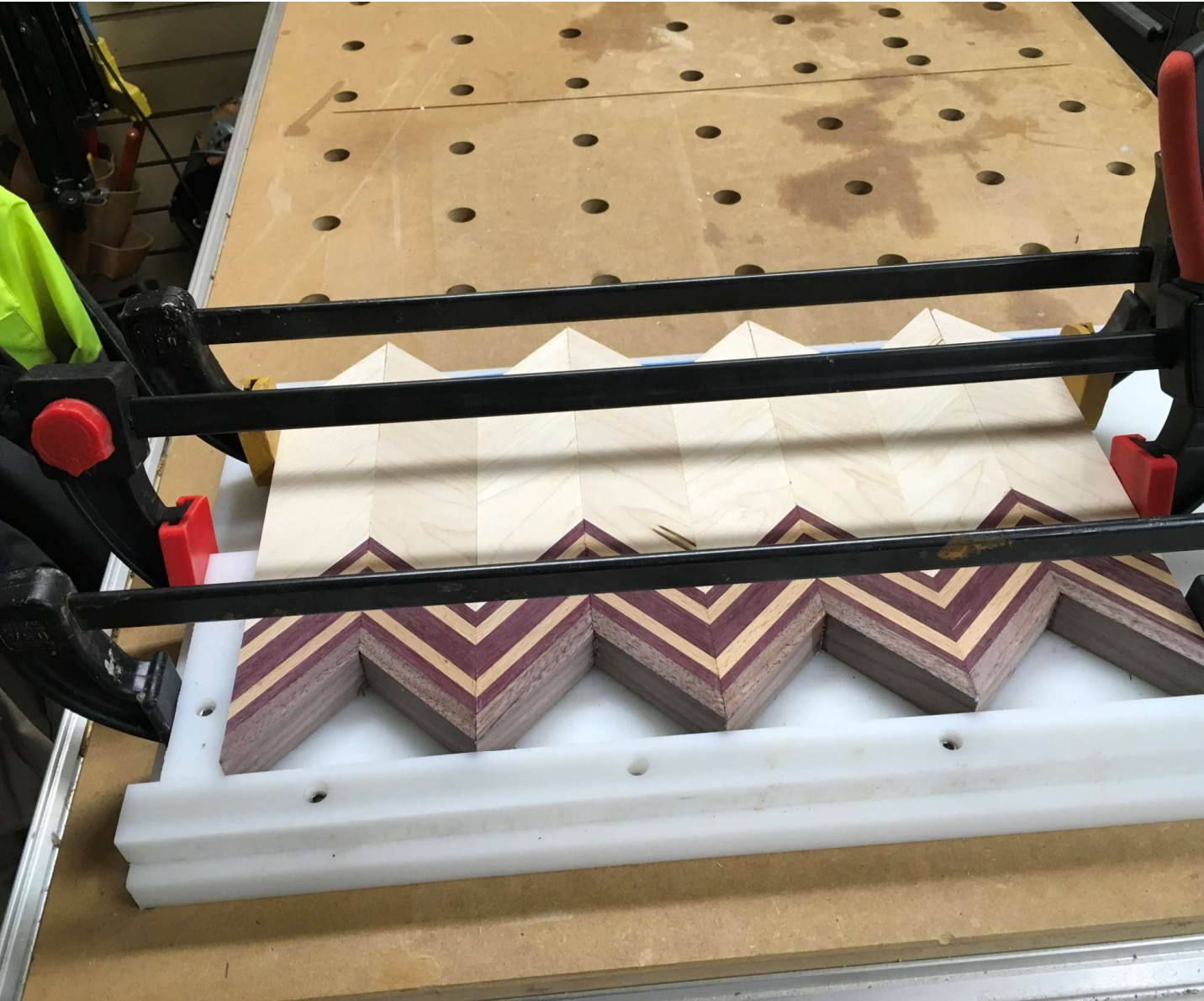
CHECK ANGLE

I use aluminum wedges purchased from Curt Theobald to verify the cutting angle

GLUE UP
CHEVRON BOARDS

Each Board has two units (there is no glue between the two units). Each unit is made up of two inverted chevrons.
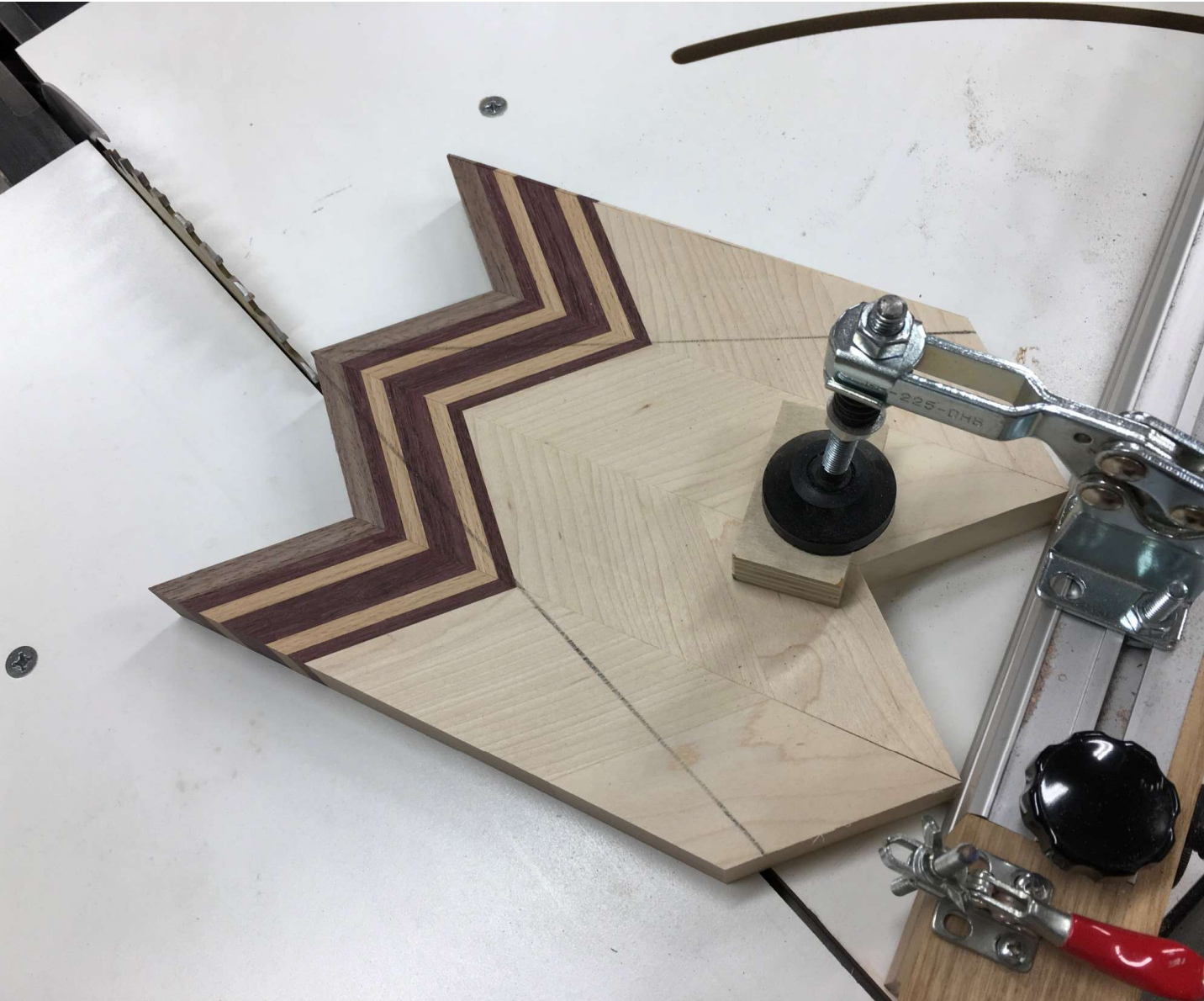
FOUR REPEATING UNITS

I've drawn pencil lines on one unit to locate the approximate position of the cut locations.

MAKE THE FIRST RADIAL CUT

Each unit has two peaks that are located against the fence. The angle is verified with a test ring of eight MDF segments. Once correct, each unit is placed on the fence until the tip of the center peak is on the edge of the saw kerf. This will be the target of every cut.
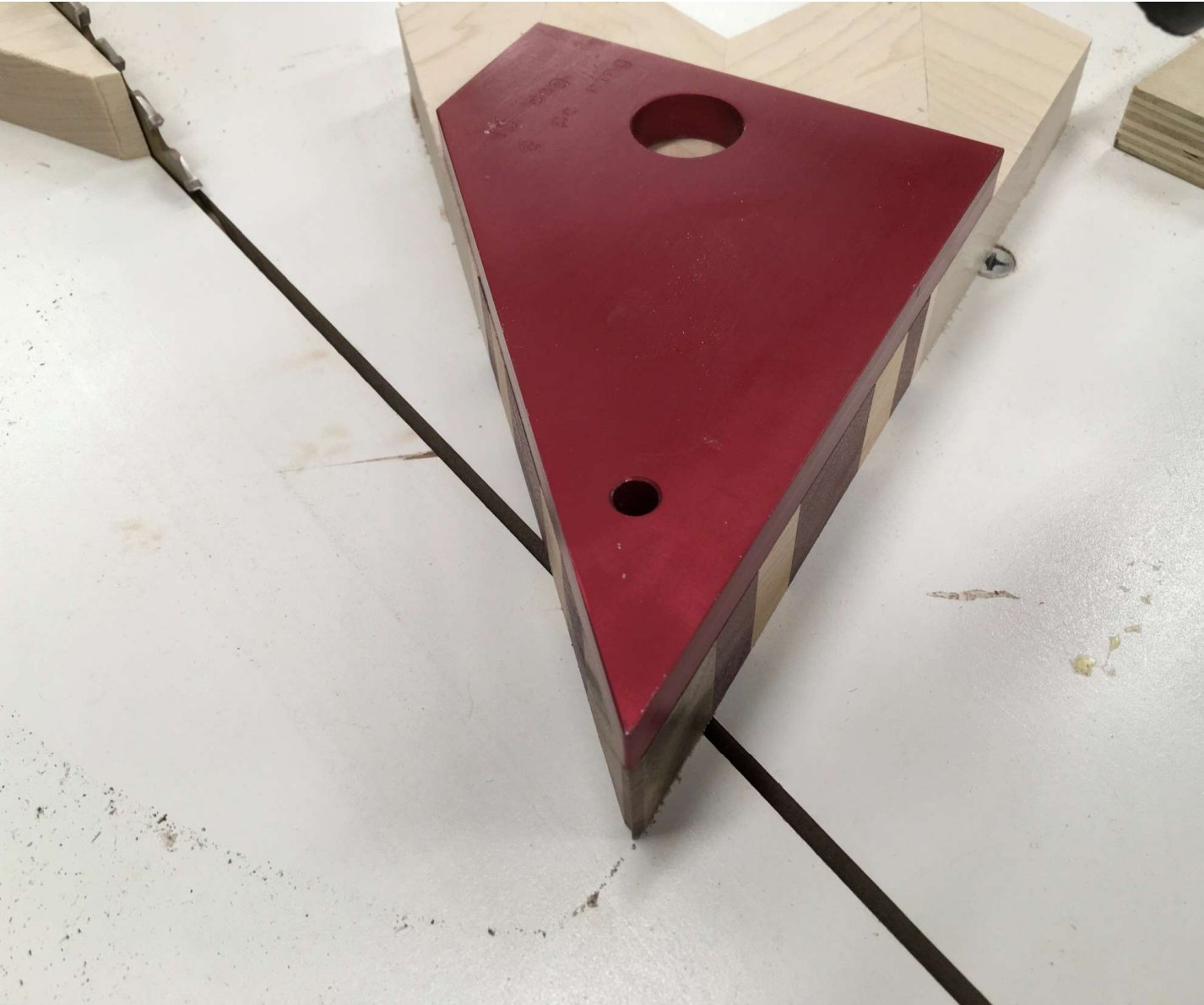
THE SECOND RADIAL CUT

The unit is now flipped over and positioned so that the same point is at the identical place of the first cut.
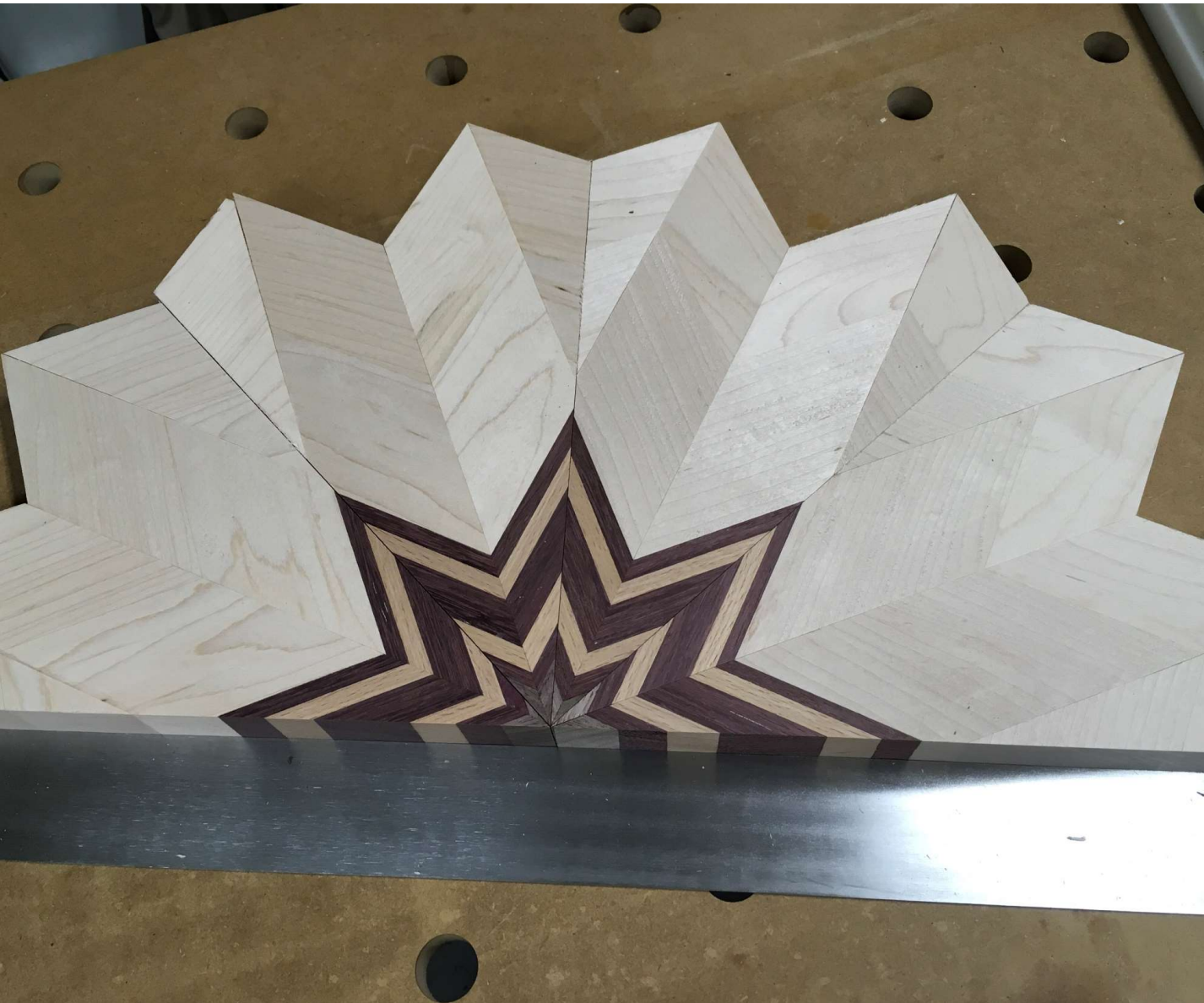
VERIFY THE ANGLE

The aluminum angle is used to gauge the accuracy of the angle.

DRY FIT A HALF RING

Four wedges are placed together along a straightedge which shows that the angle is perfect.

Since each of the four wedges will be cut into three slices, there will be enough wood to make 1.5 half rings.

THE WASTE CUTOFFS WILL BE USED IN A SEPARATE PROJECT

There is a fair amount of waste in a project such as this, but it can almost always be used in other projects.

LABEL THE SLICES TO HELP POSITION WEDGES

The three slices that are cut from each wedge are sequentially numbered and keeping them in that order is the most likely way to have the patterns match.

DRY FIT THE WEDGES

Eight wedges are now put together to check for the fit of the design. The boards I used for the primary lamination were made at two different times and were not exactly the same. Although I knew this would cause alignment issues, I proceeded anyway knowing that this was a proof-of-concept project.
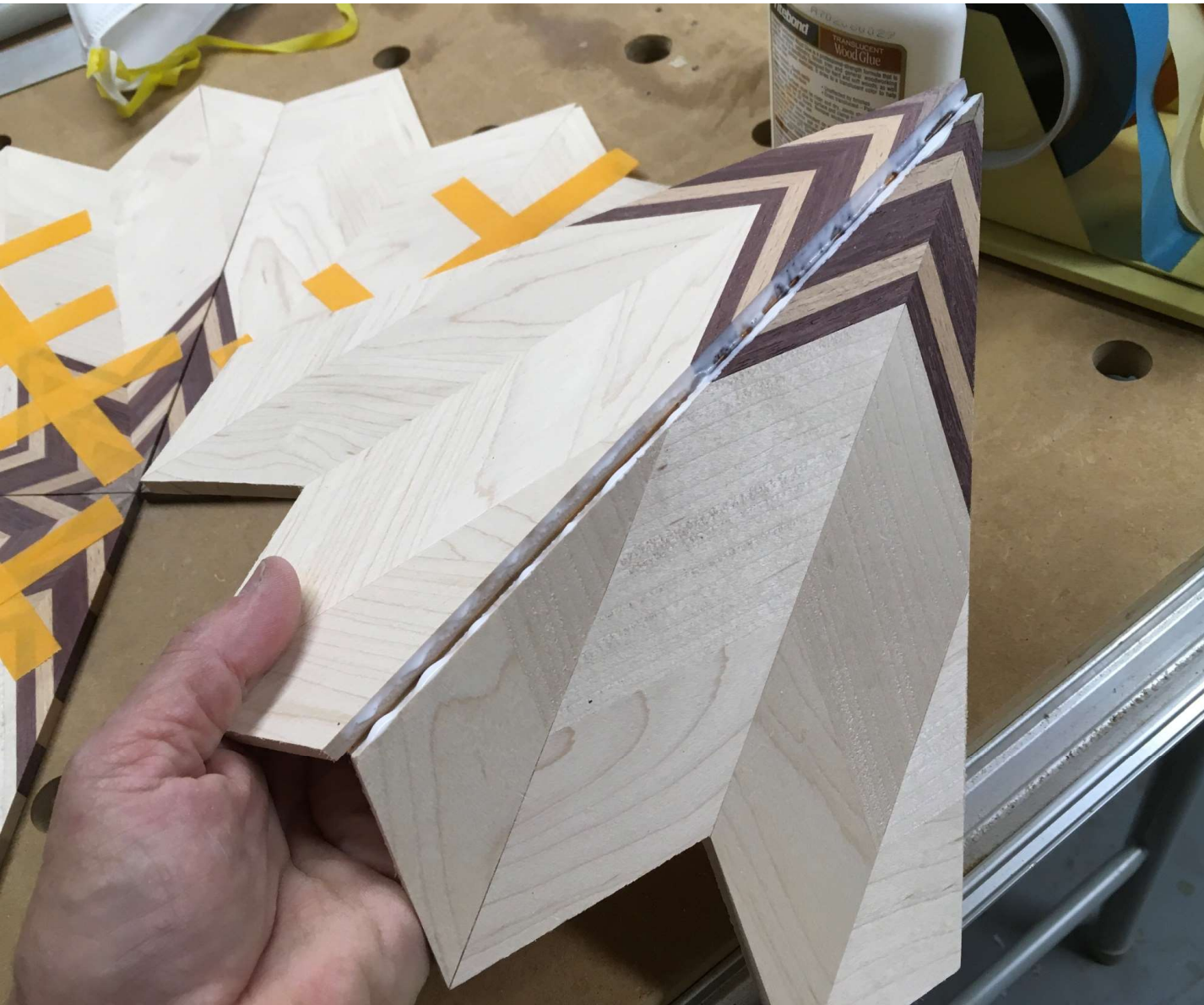
CLAMPING USING STRETCH TAPE

I'm using luthier's tape for clamping. The tape is stretchy which does a great job in allowing glue to be applied. Three strips are used for each joint and then one long strip to reduce glue squeeze out.

GLUE WEDGES IN PAIRS

Flip the wood over which exposes the joint between the two wedges.

ADD STRETCHY TAPE TO SECOND SIDE

Now that the tape has been stretched on both sides, the pairs of wedges will lay perfectly flat and are left to dry.

GLUE TWO PAIRS TOGETHER

Repeat the prior process to glue the two pairs into a half ring

CENTER THE GUITAR BODY ONTO THE TWO HALVES

Position the body so that the pattern is centered and the overlay completely covers the entire body.

The fit was perfect. Had it been short, additional pieces of wood could have been glued to cover the entire body.
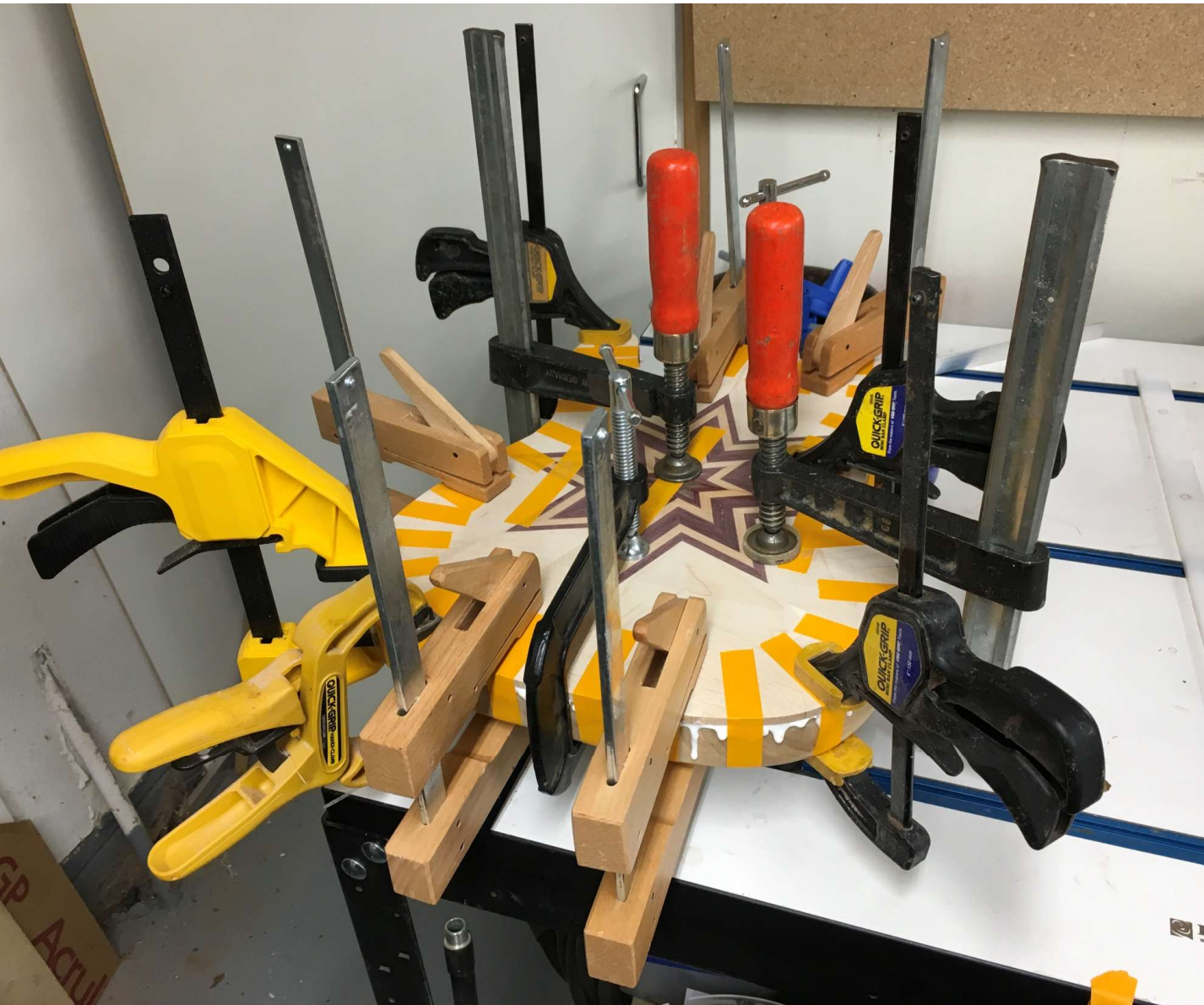
Trace around the body with pencil.

OVERLAY READY FOR TRIMMING

Bandsaw to the outside edge of the pencil lines

GLUE OVERLAY TO BACK

Use plenty of clamps. Use sticky tape to make sure that the edges have no gaps between the body and the overlay.
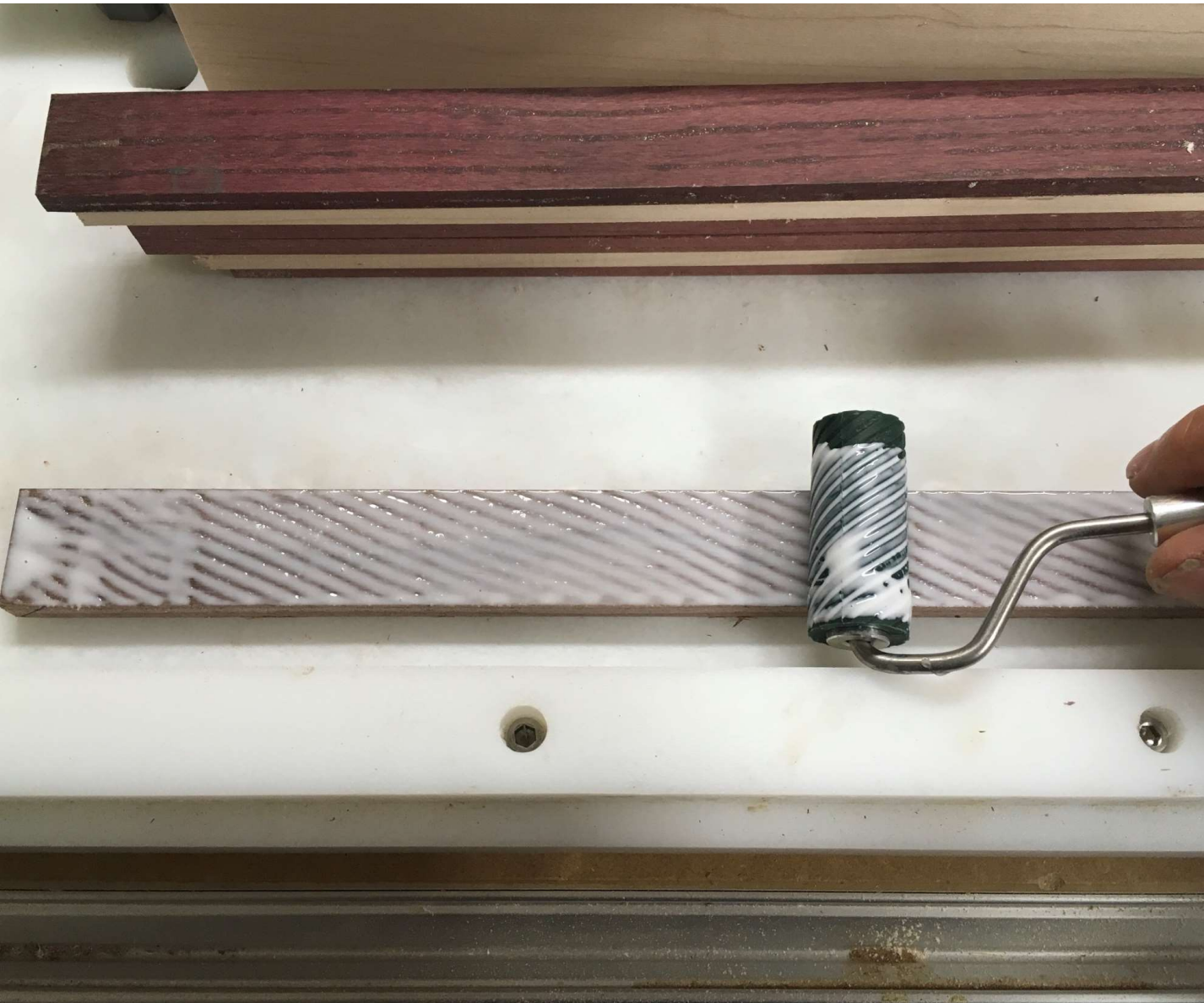
USE TRIM ROUTER BIT OR SANDER TO FINISH TRIMMING

The trim router bit is the fastest method but is more risky than an oscillating sander because of the risk of chip out along sharp curves. If you use a trim bit, make sure that it is sharp. A helix bit adds a degree of chip protection.

FRONT SIDE OVERLAY

FRONT SIDE LAMINATED BOARDS

The back overlay was sized to completely cover the body and center the star. A centered star on the front would be largely covered up by controls, pickups, etc., and so I decided to make an overlay that had a start of the same dimension as the back but with a background field that would cover only a portion of the front. This would let me off-center the design and use extra wood to cover the remainder of the front.

GLUE THE STRIPS TO MAKE THE LAMINATED BOARDS

I use a silicon glue spreader which makes cleanup simple.

REMOVE AS MUCH GLUE AS POSSIBLE

I use blank credit cards to scrape away as much glue as possible.

USE WATER FOR CLEANUP

Water can be used to remove glue squeeze out. The water may slow the tack time of the glue but it will not affect its gluing properties.

FINISHED LAMINATED BOARD

This is what I like my laminated boards to look like then they are drying.

THICKNESS SAND LAMINATED BOARDS

Remove as little wood as possible to achieve boards that have parallel, fully-sanded surfaces.

USE MITER SAW TO CUT STRIPS

To demonstrate that a miter saw works equally well to the table saw in cutting identical strips.

I am using an MDF sled that is clamped to the fence. Doing this requires that the sled is clamped to the fence and the blade is set to cut just deep enough to cut through the entire width of the laminated board.

FIRST CUT

As you can see, the strips of the laminated board were offset glued at the approximate cutting angle to reduce waste.

FLIPSTOP IS USED TO POSITION WOOD

The flipstop (made by Incra) is a great solution for positioning the laminated board and then flipping it out of the way when the cut is made.
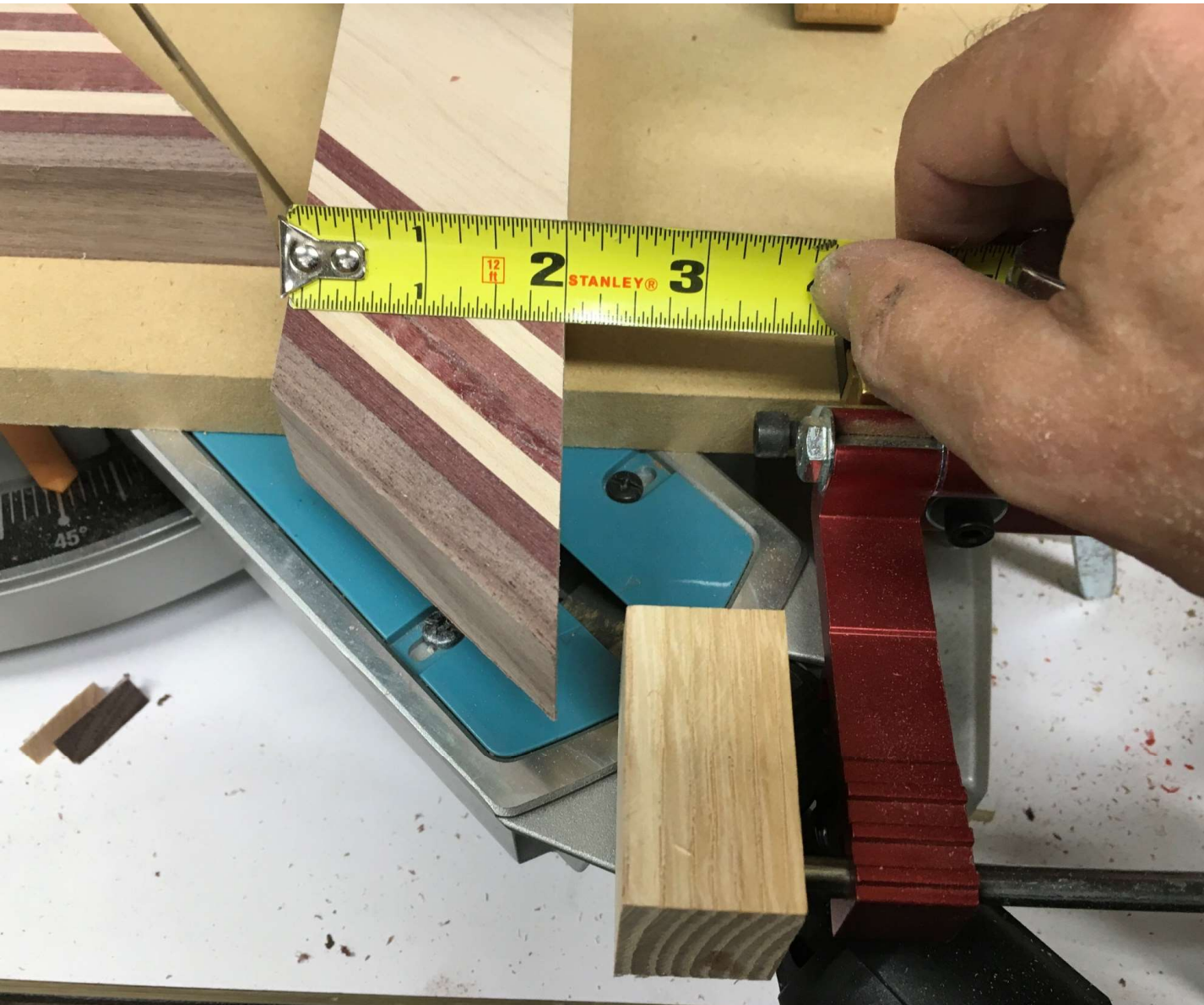
RETRACT STOP TO MAKE CUTS

In this cutting configuration, it is possible to not flip the flipstop when the cut is made. I flip it more out of a habit of flipping the stop before every cut.

CUT ALL STRIPS TO 2" WIDTH

This measurement is critical as minor errors in the width make noticeable differences in the overall design.
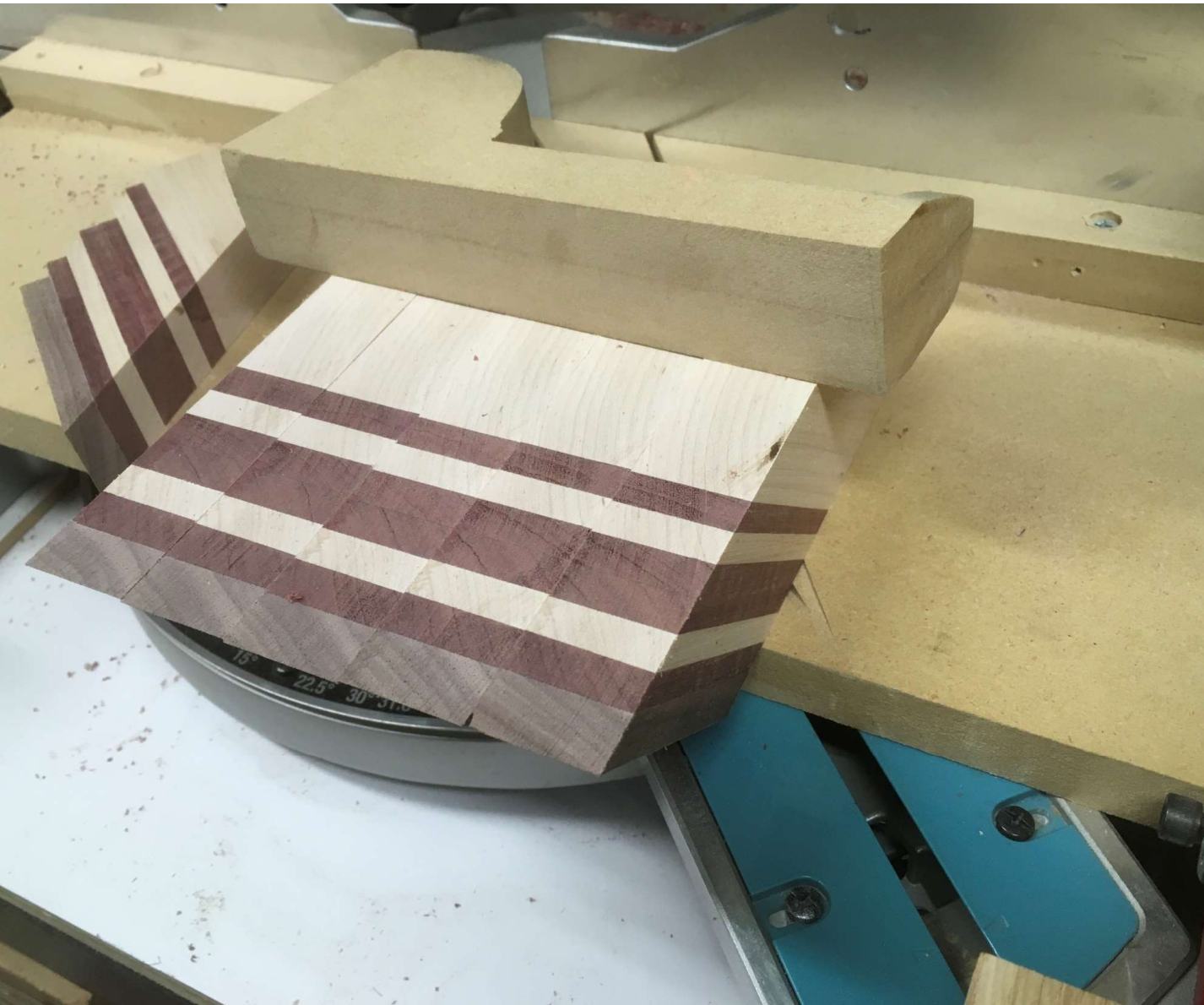
SECOND OPTION FOR A CUTTING STOP

For safety purposes, a strip has been clamped in place that is used as a stop and keeps the wood being cut in place since clamping of it is nearly impossible.
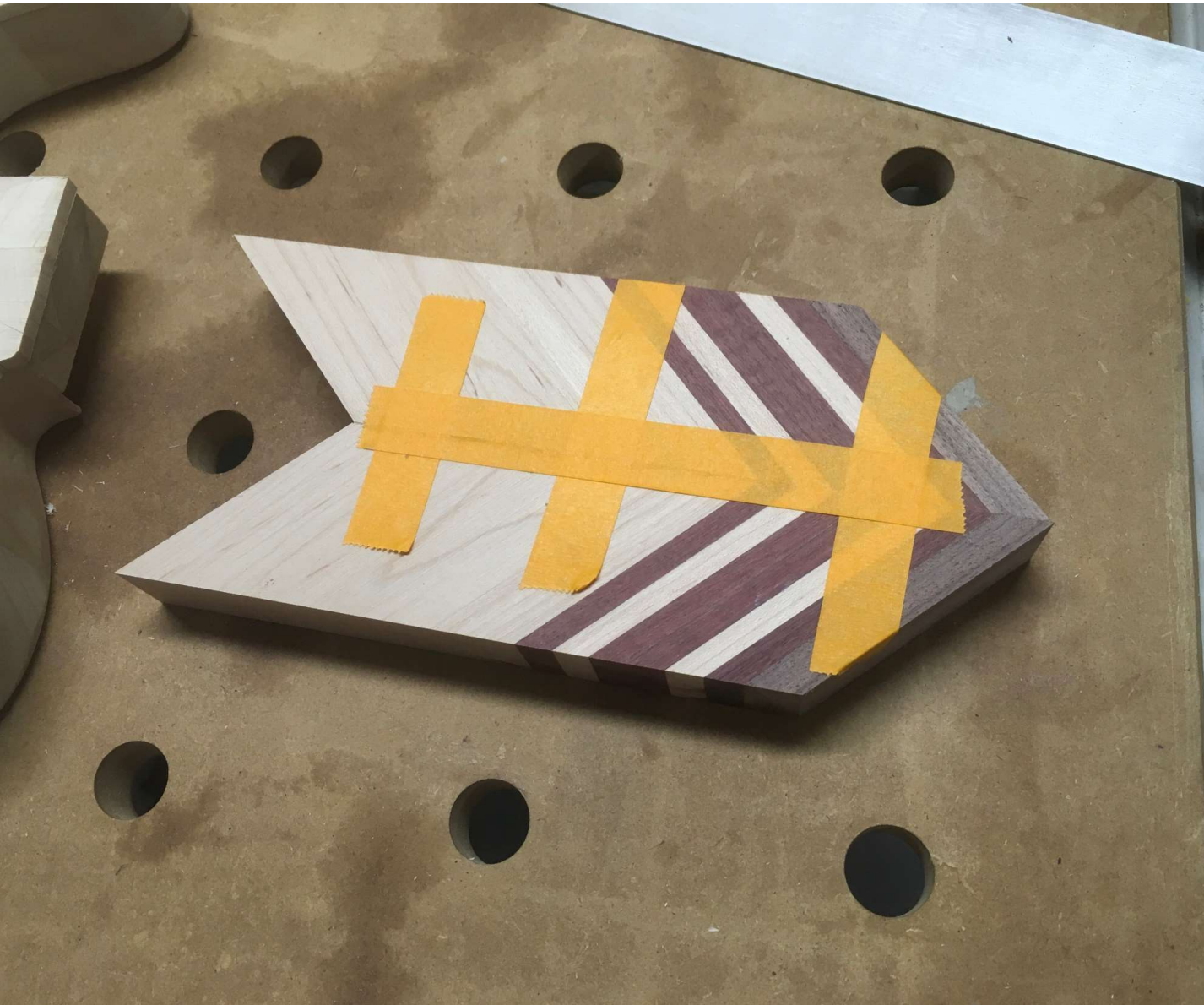
CHECKING ACCURACY OF CUTS

When flipped on their sides, the strips will quickly show if they are all the same width. Any variations on width will be very noticeable in the final design.

GLUE IN SINGLE PAIRS INSTEAD OF DOUBLE PAIRS

For the back, each unit was made from two inverted chevrons. For the front, the field strips surrounding the primary lamination is covering a much smaller area and so it is possible to make the wedges from one chevron instead of two. Because of this, the chevron is not inverted.
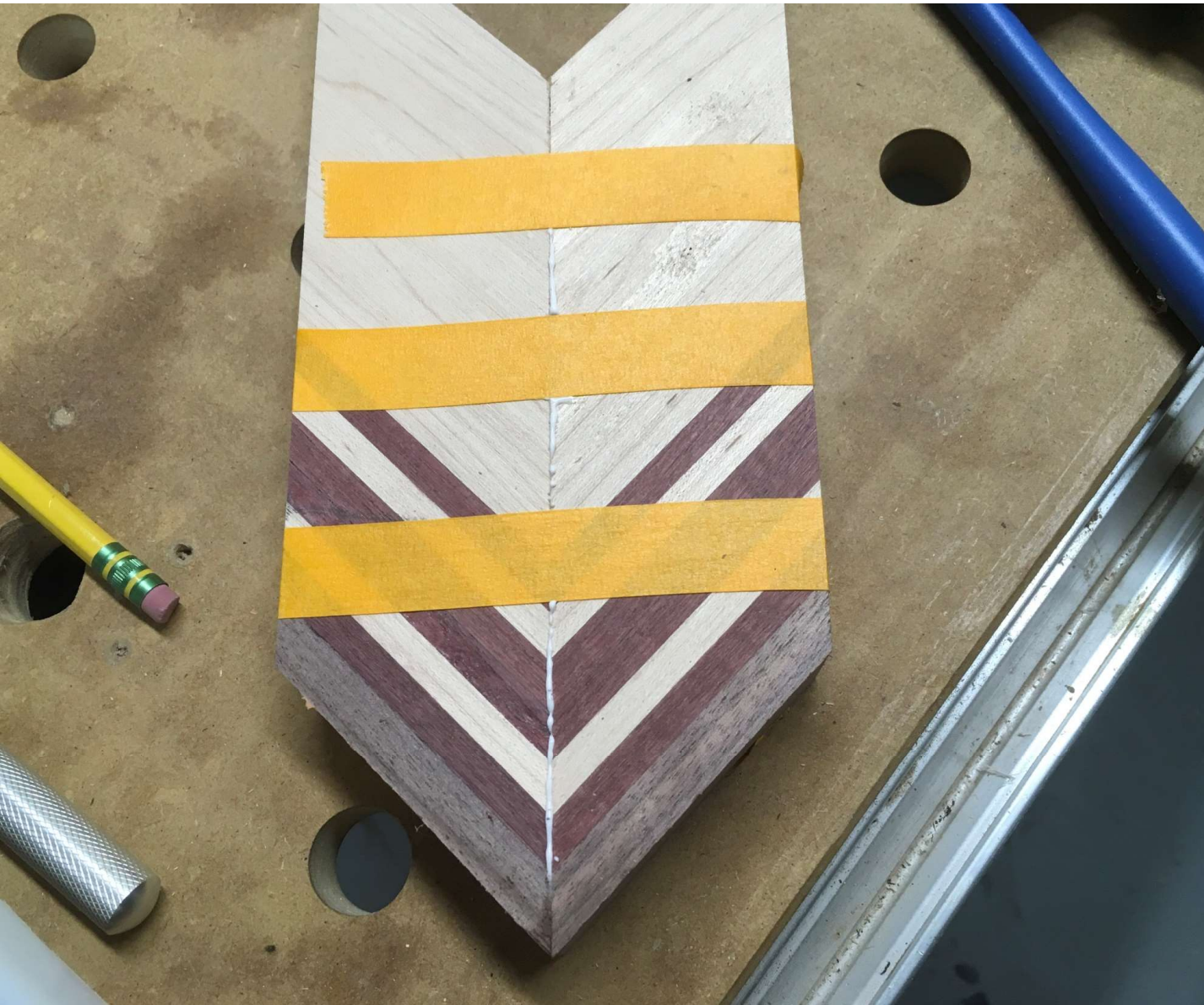
Stretchy tape is being used for clamping as before.

GLUE STRIPS
INTO CHEVRON

TAPE BOTH SIDES

The stretchy tape on both sides provides all the clamping that is necessary.

MAKE SURE OF FLATNESS

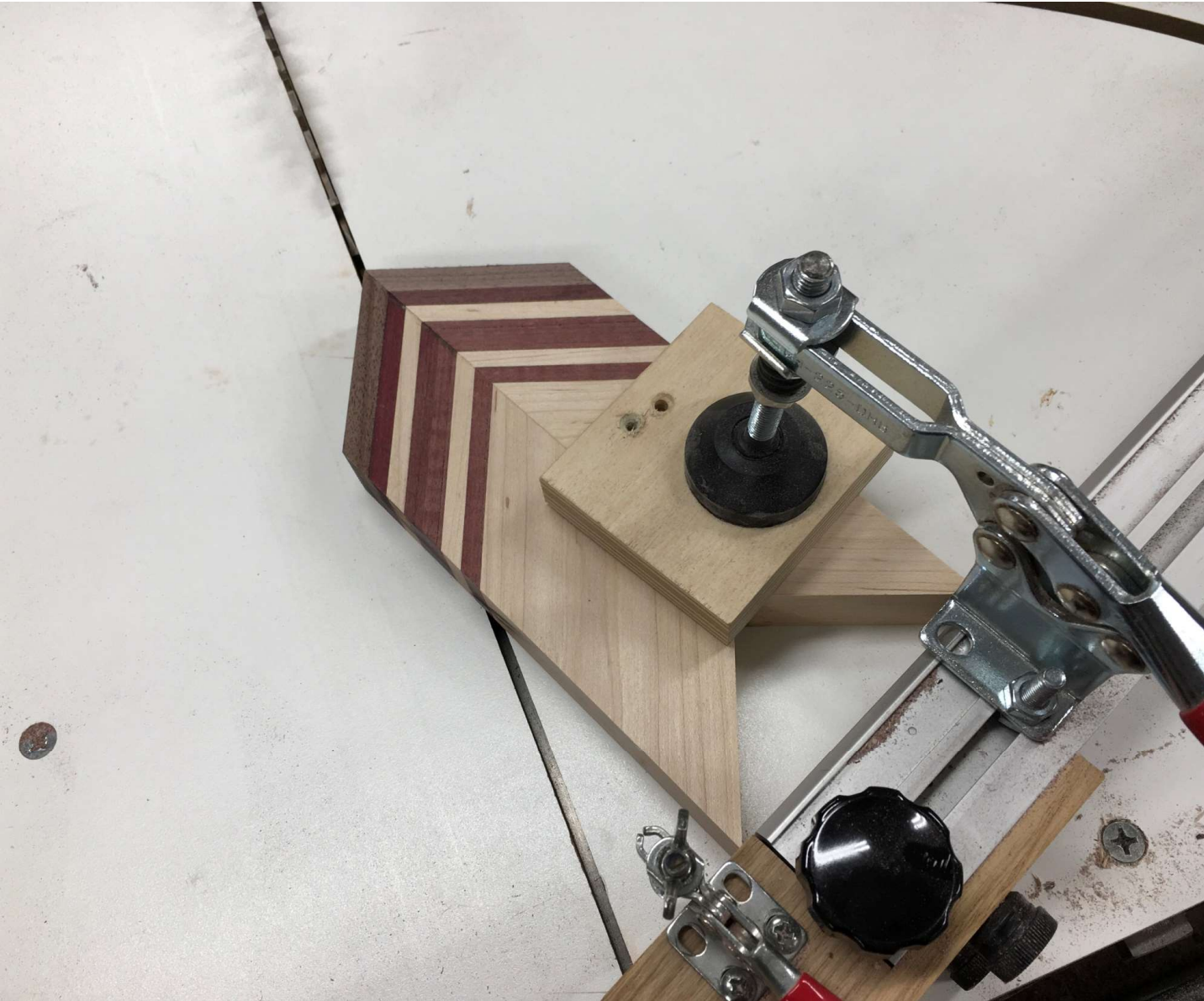A self-regulating Kreg jig is a good way to make sure that the two strips are positioned correctly.

FINISHED CHEVRONS

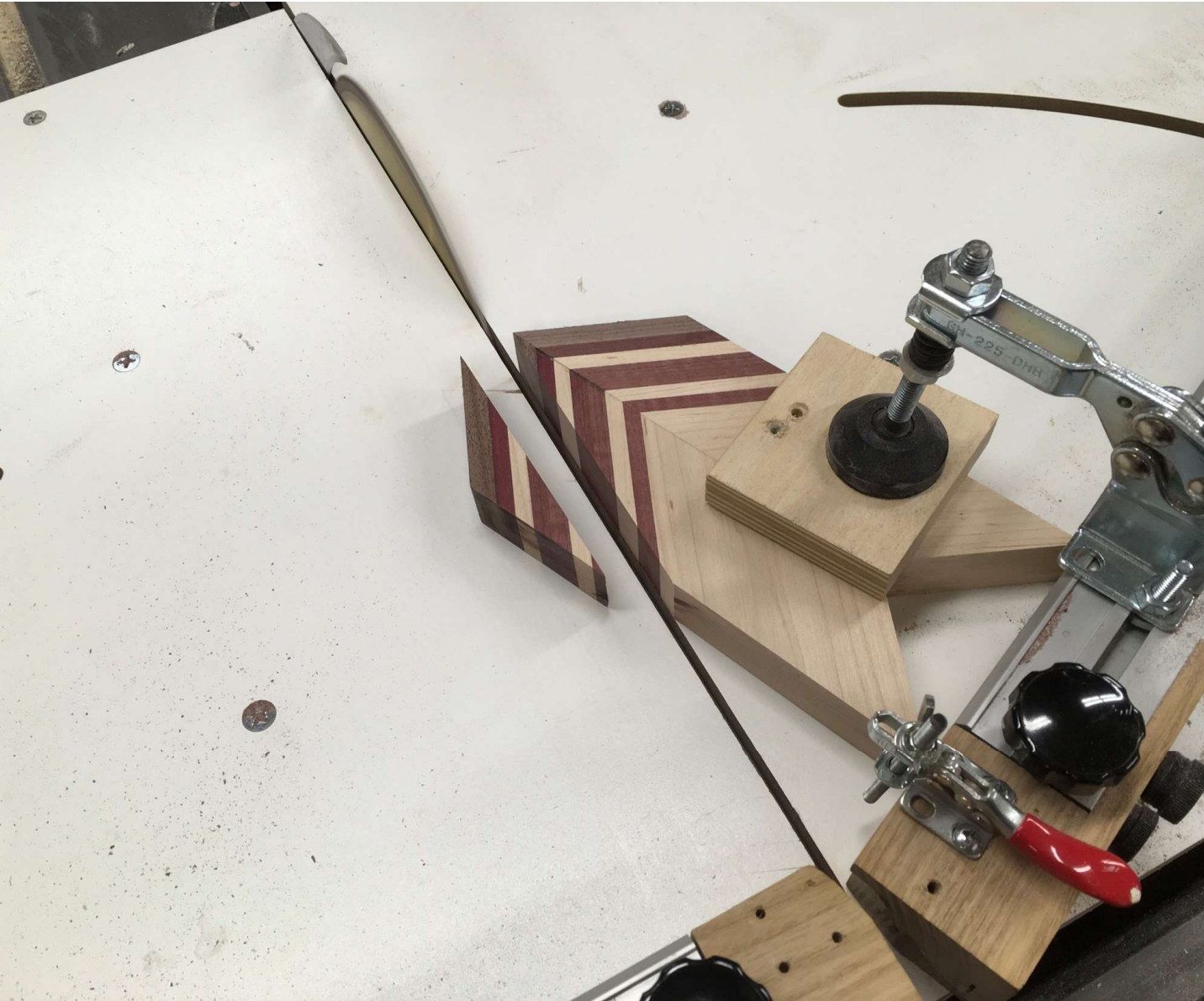This method uses half as much wood.

MAKE FIRST RADIAL CUT

Once again, the two peaks on the opposite end of the unit are placed against the fence and the peak is positioned at the edge of the saw kerf.

FLIP TO MAKE
SECOND CUT.

CUTOFF PEAKS AND USED TO FILL VOIDS

Using single chevrons greatly reduces the amount of wood waste, but it does require the voids to be filled. Fortunately, the cutoff 'ears' fit perfectly into these voids.

FINISHED FRONT

Before gluing the overlay to the front, mark the locations of the cutout locations for the neck, controls, etc.

Position the star as desired and use matching wood to cover the places missed by the overlay.