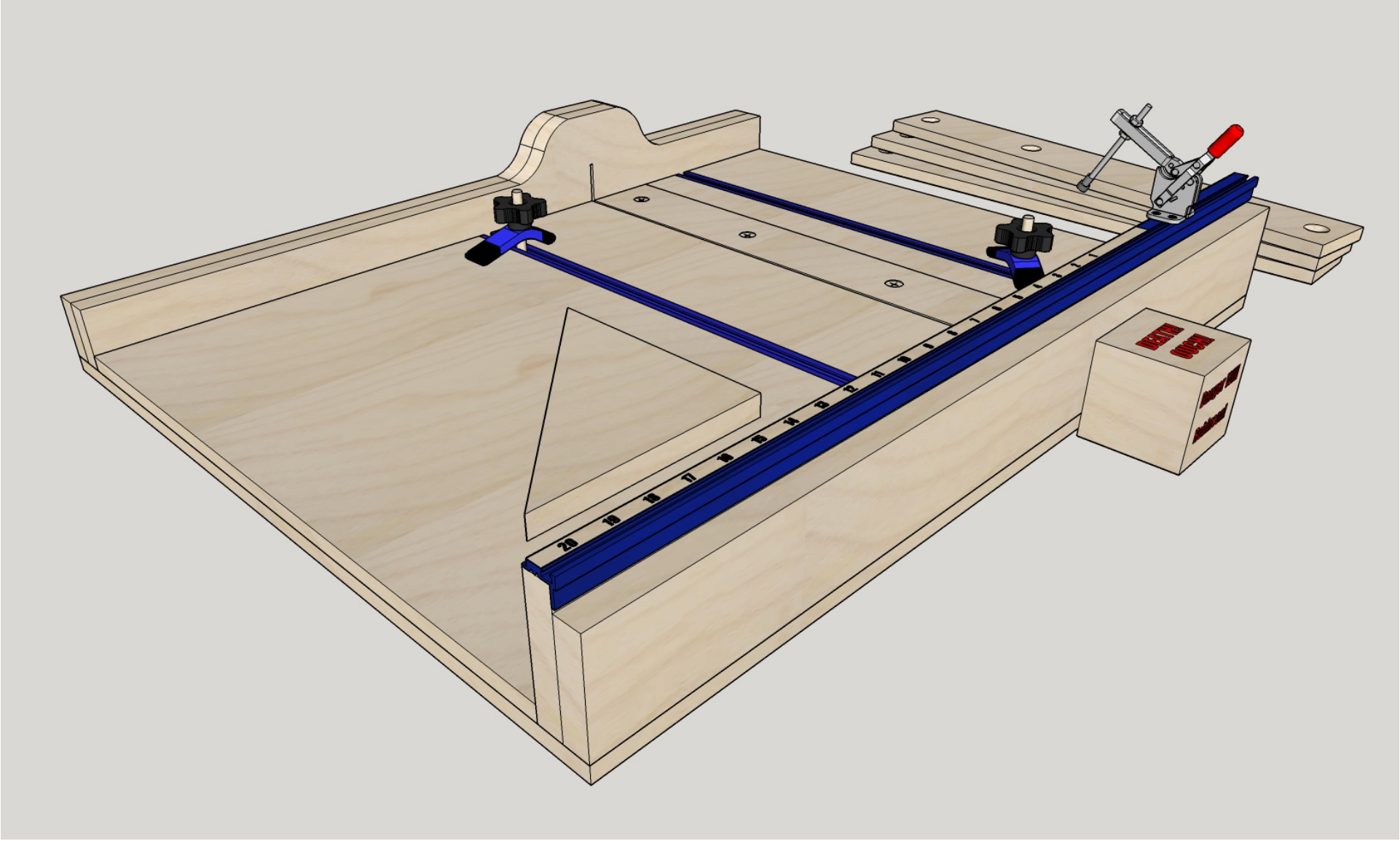
Extreme Table Saw Sled
Crosscut - Miter - Dado

King's Fine Woodworking Inc.

Created October 2017
www.kingsfinewoodworking.com
email: james@kingsfinewoodworking.com



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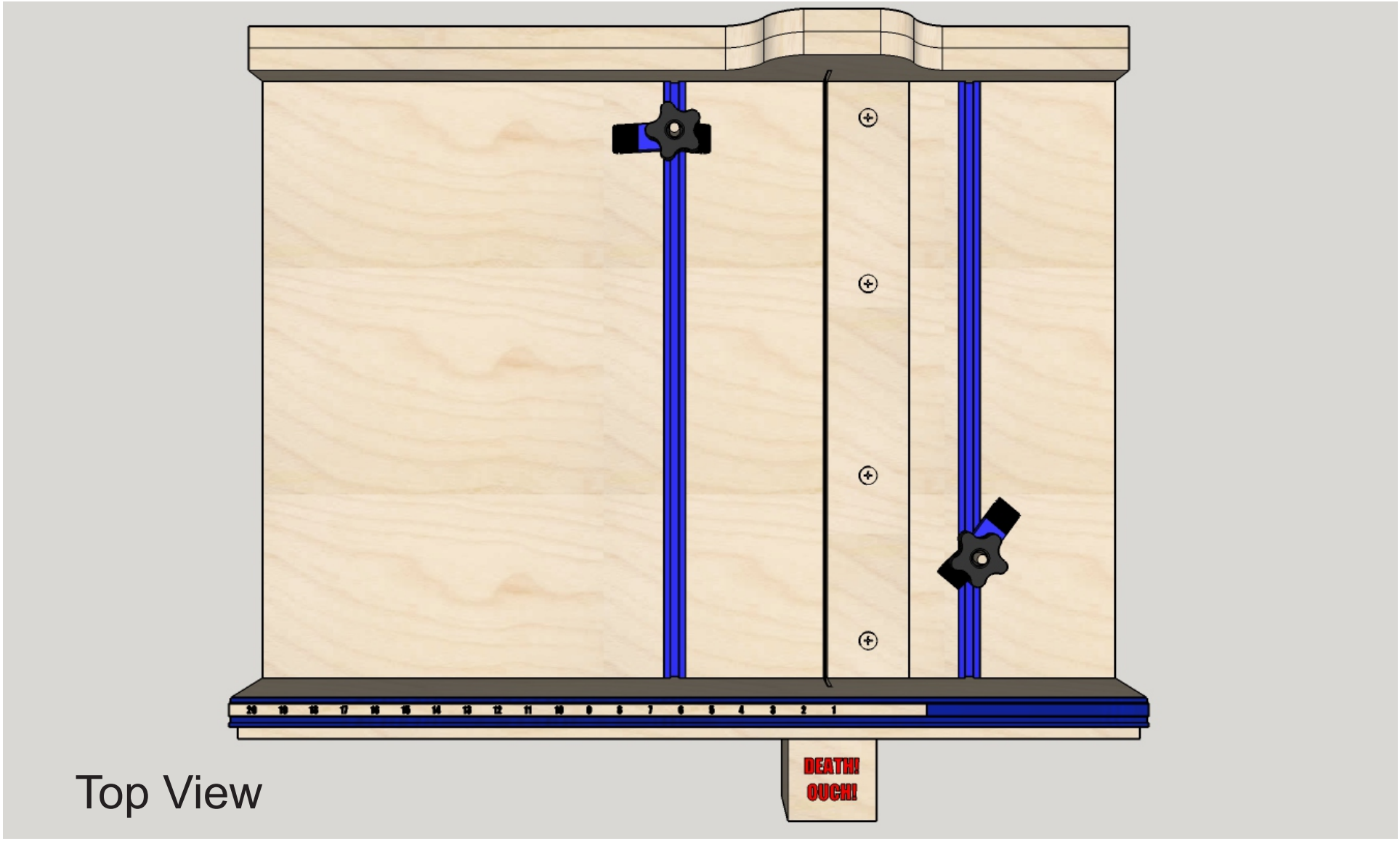

Top View

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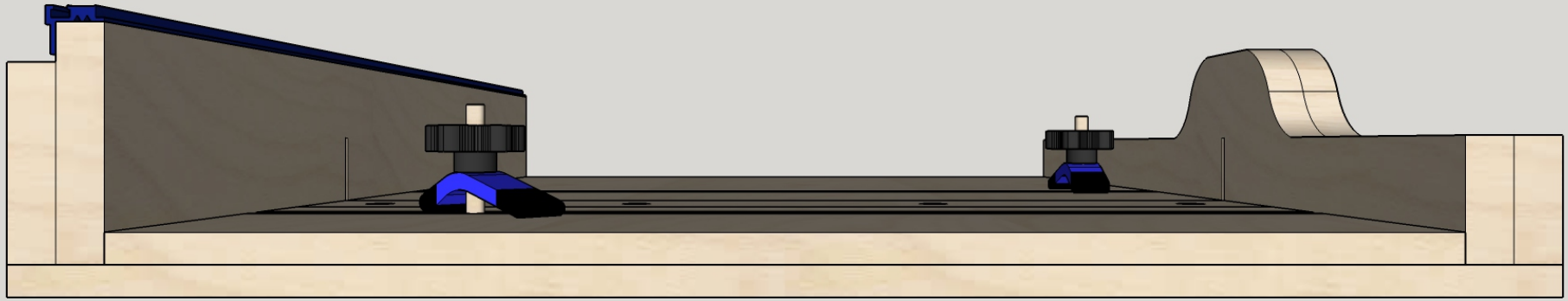

Side View

Extreme Table Saw Sled
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Sled bottom before cutouts, 1/2" ply

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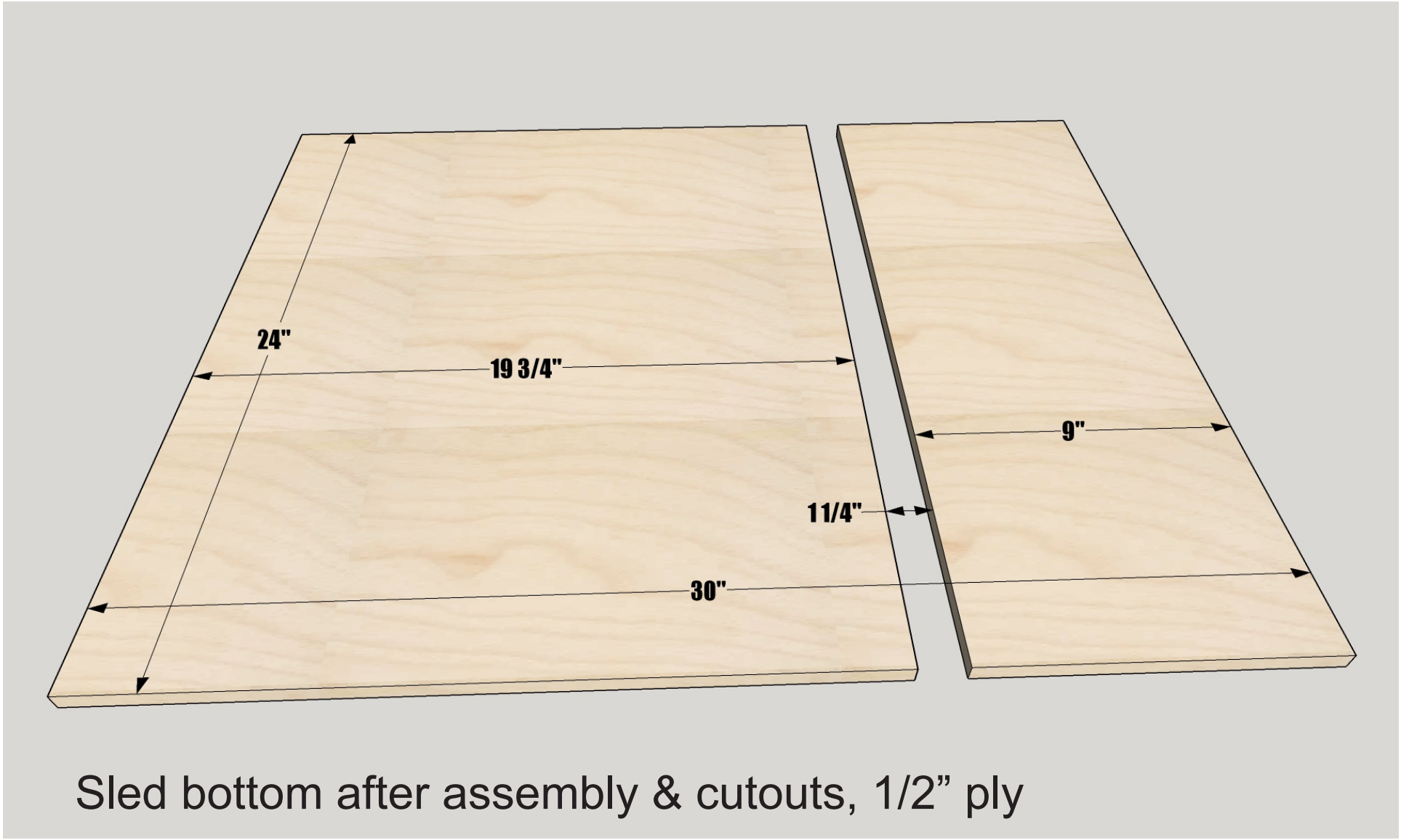

Sled bottom after assembly & cutouts, 1/2" ply

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Crosscut - Miter - Dado

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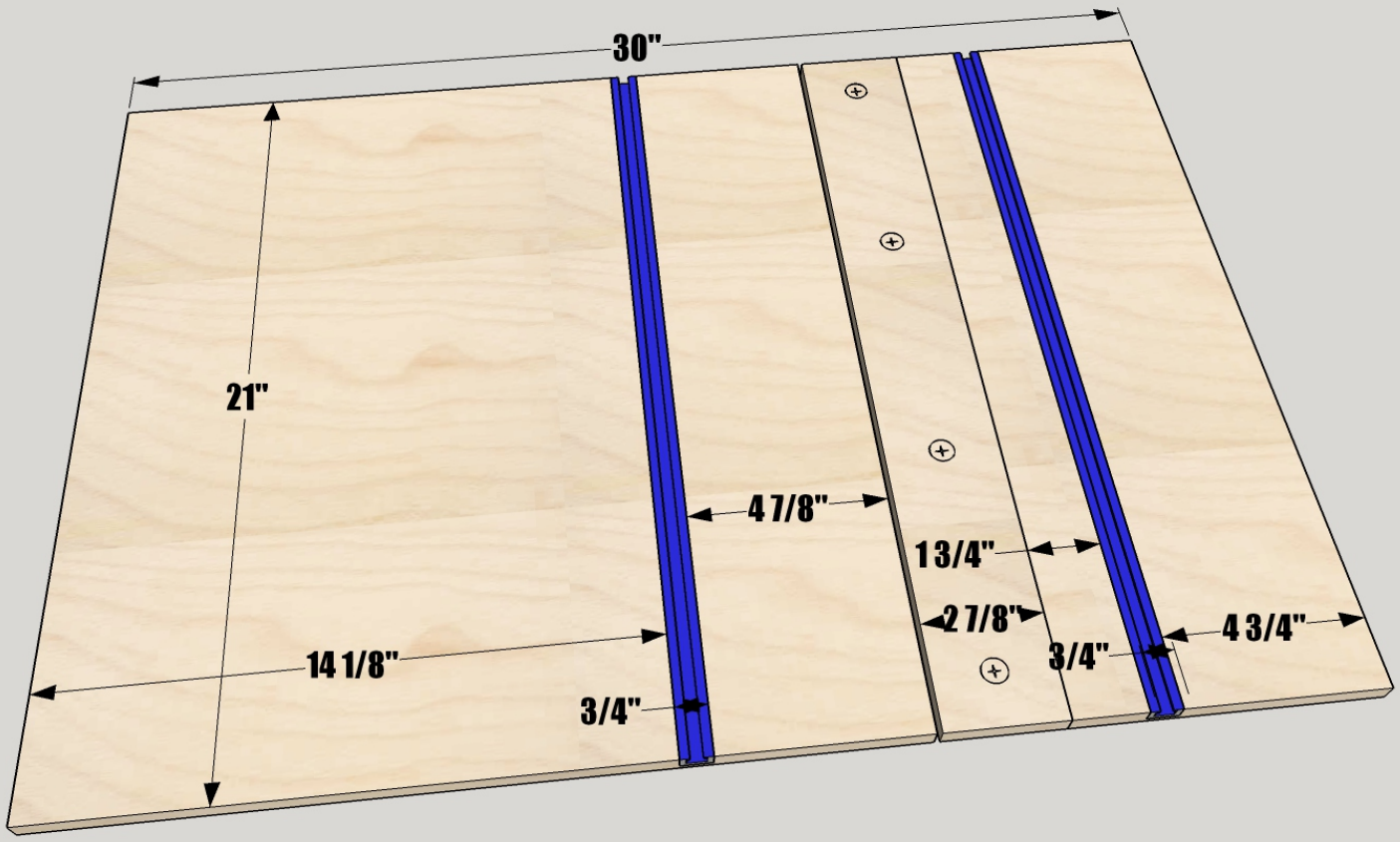

Upper sled parts after cuts & assembly - 1/2" ply

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Crosscut - Miter - Dado

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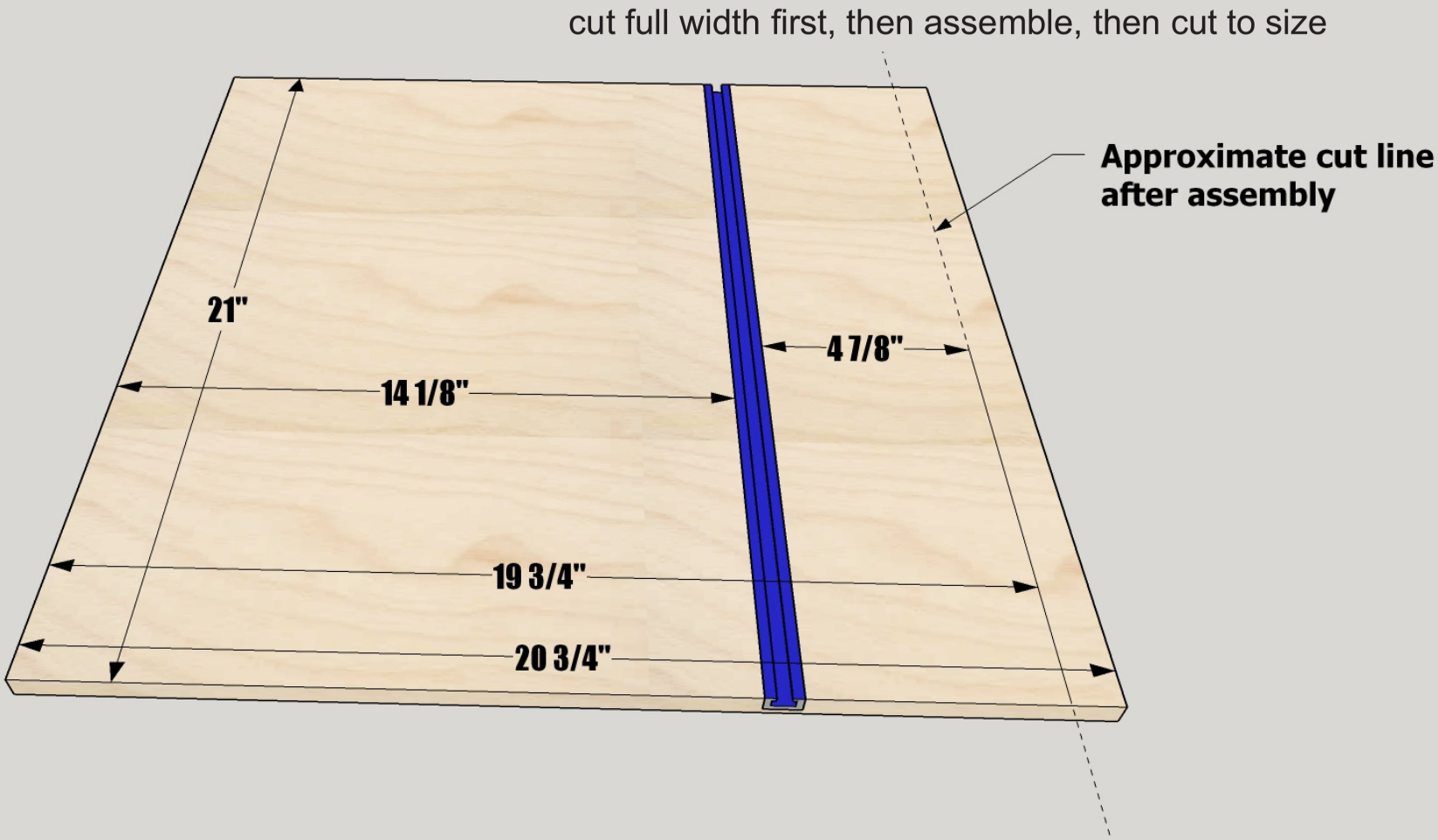

Upper sled left side - 1/2" ply

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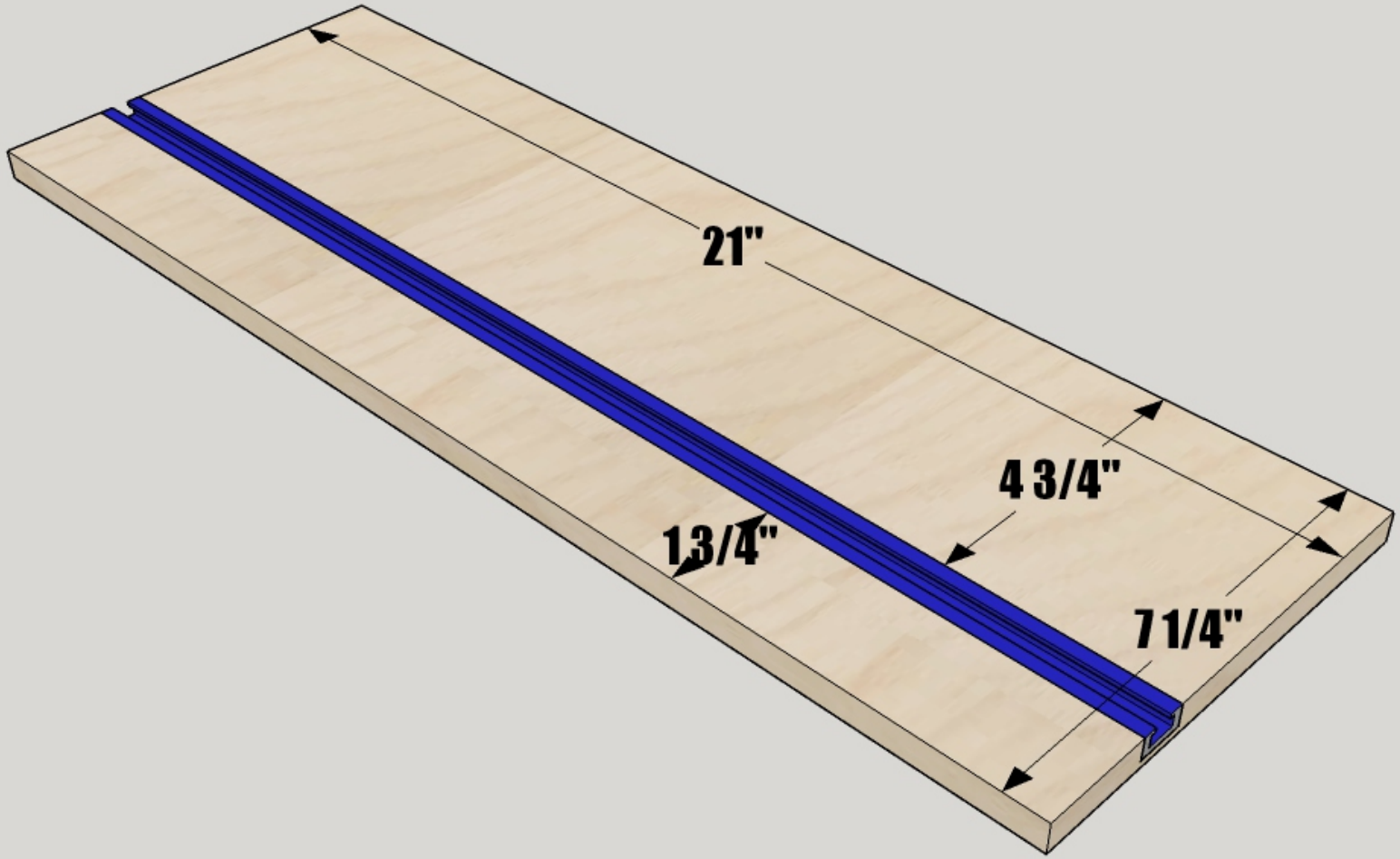

Upper sled right side - 1/2" ply

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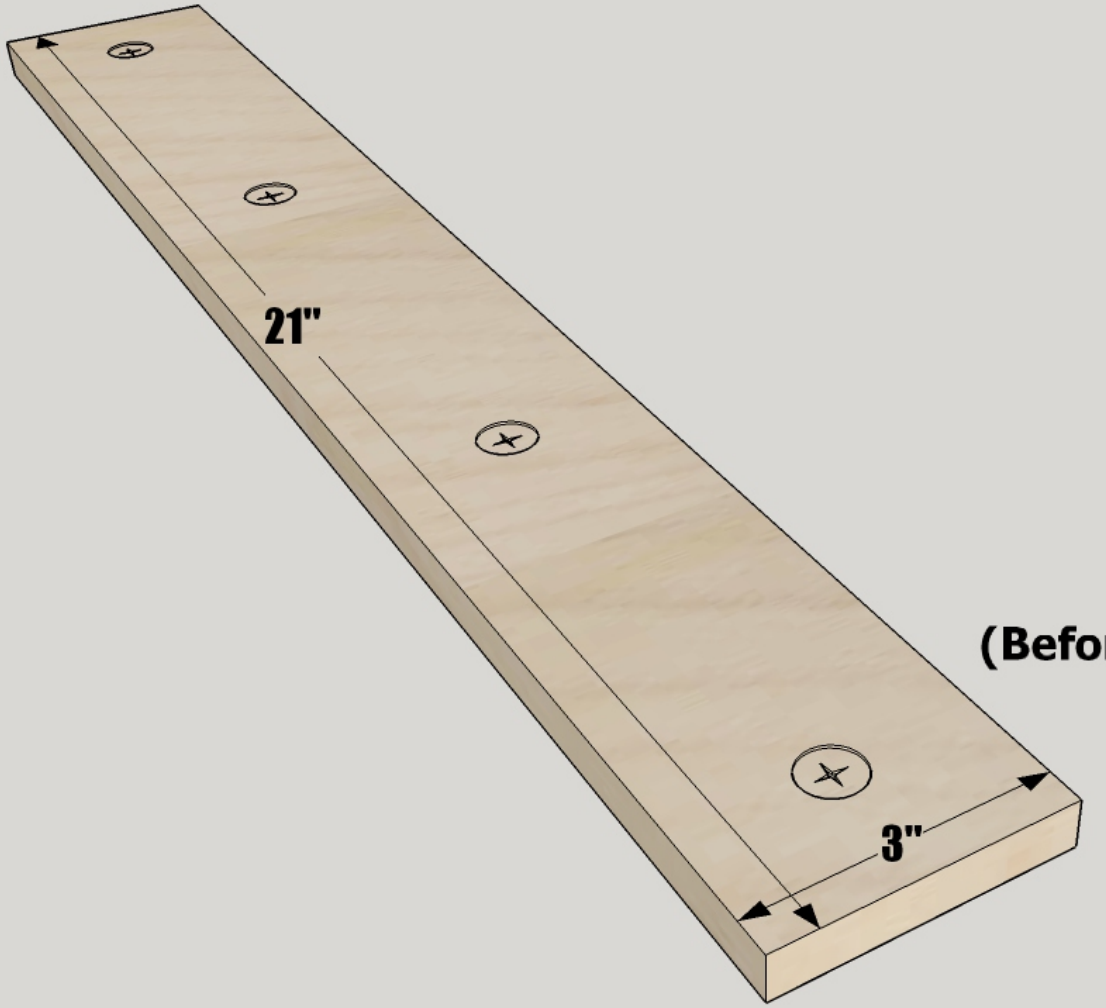

(Before being cut)

Upper sled insert plates (make several) - 1/2" ply

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Crosscut - Miter - Dado

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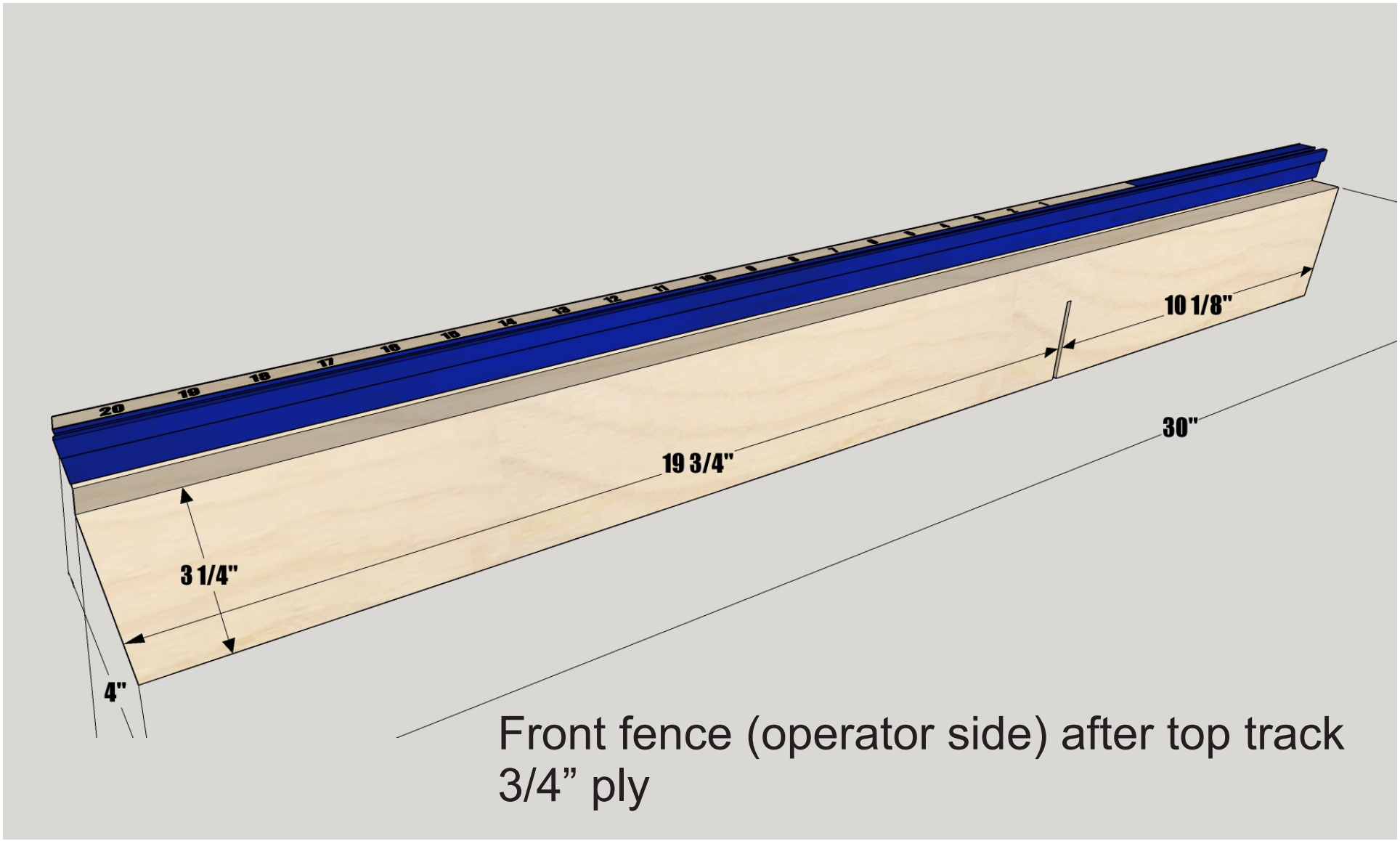

Front fence (operator side) after top track
3/4" ply

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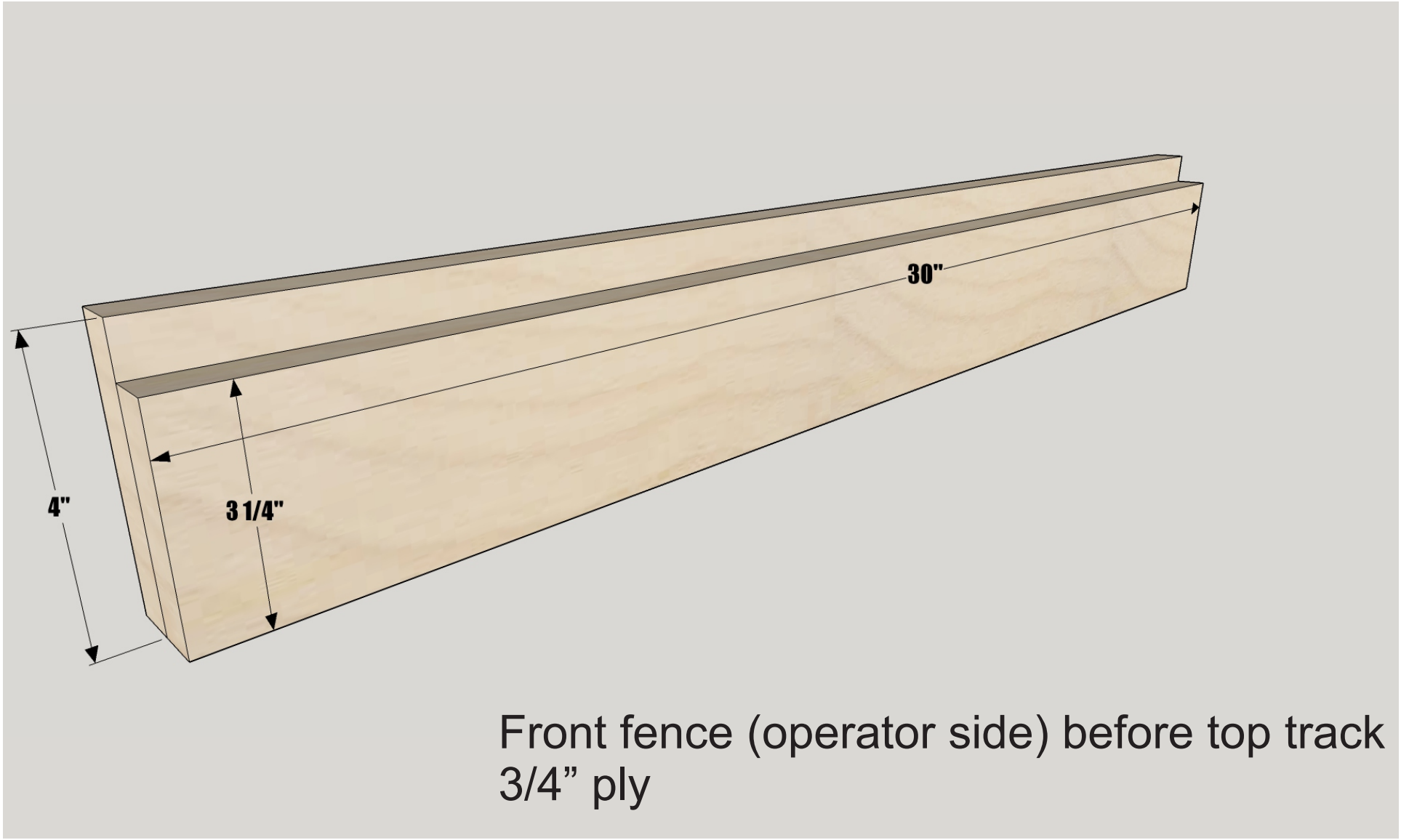

Front fence (operator side) before top track
3/4" ply

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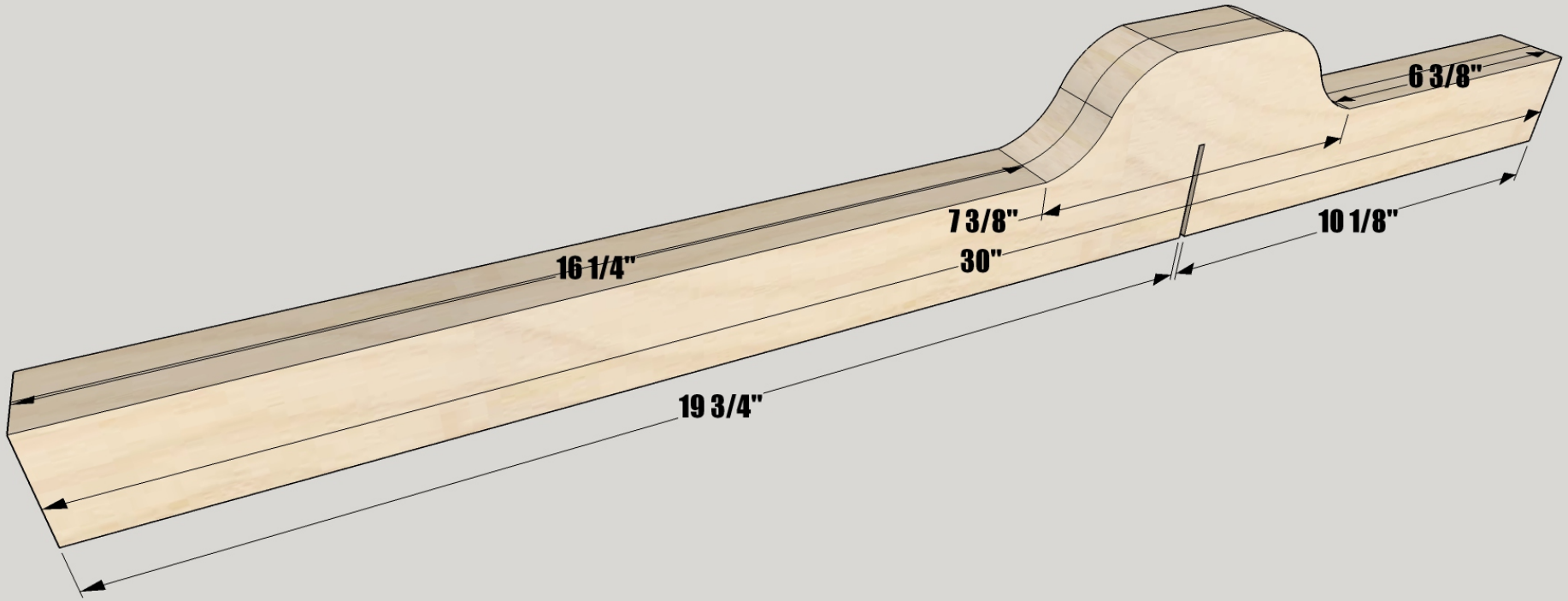

Back fence (side away from operator) after cutout
3/4" ply

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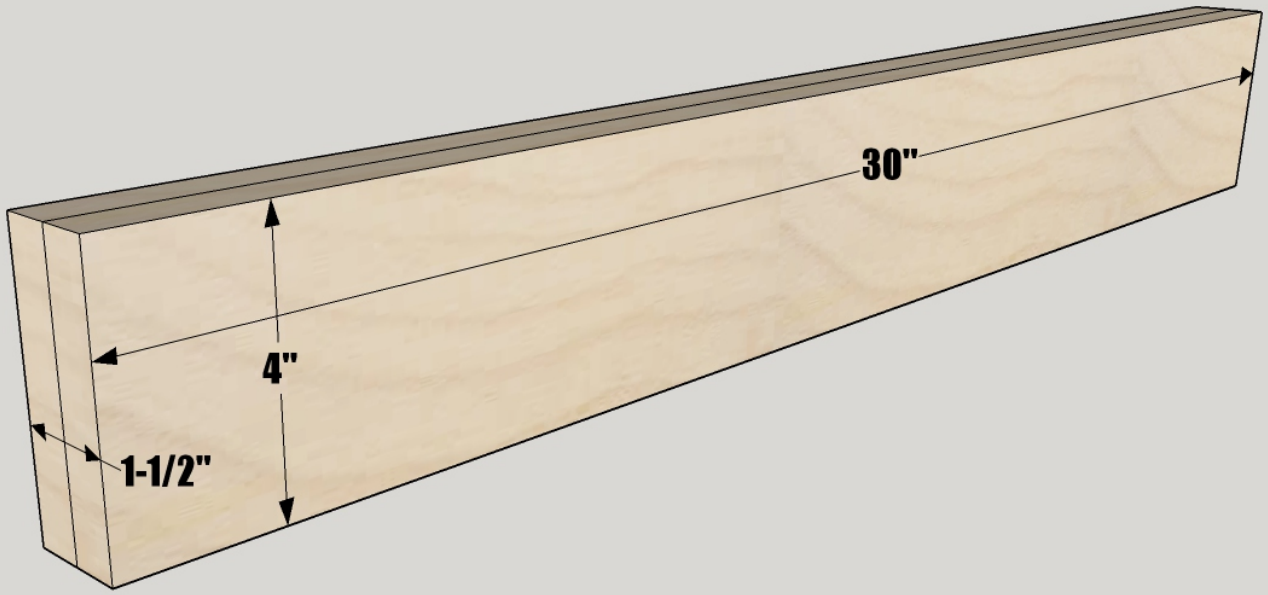

Back fence (side away from operator) before cutout
3/4" ply

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Crosscut - Miter - Dado

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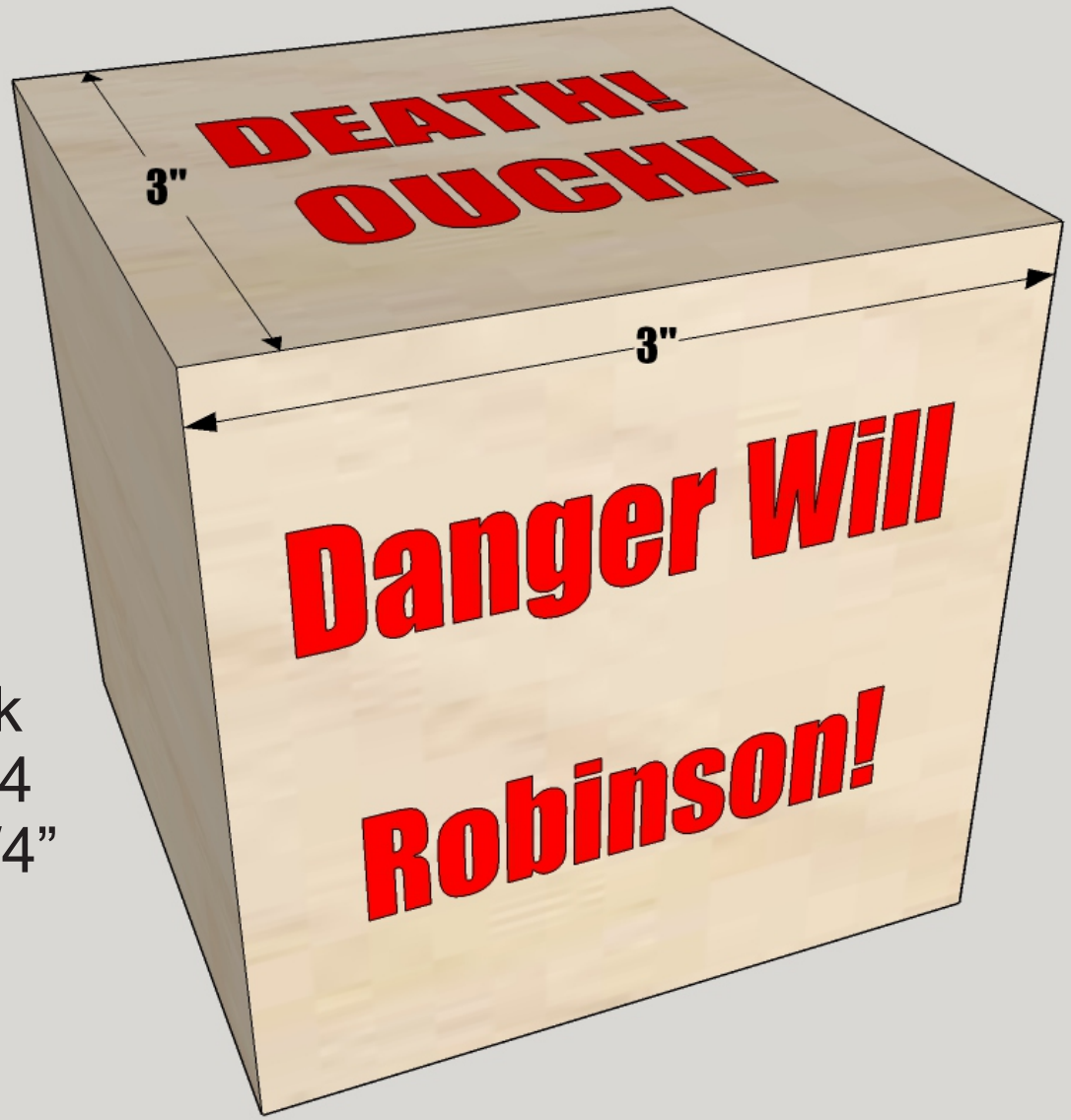

Safety block made from 4 pieces of 3/4" ply

Extreme Table Saw Sled
Crosscut - Miter - Dado

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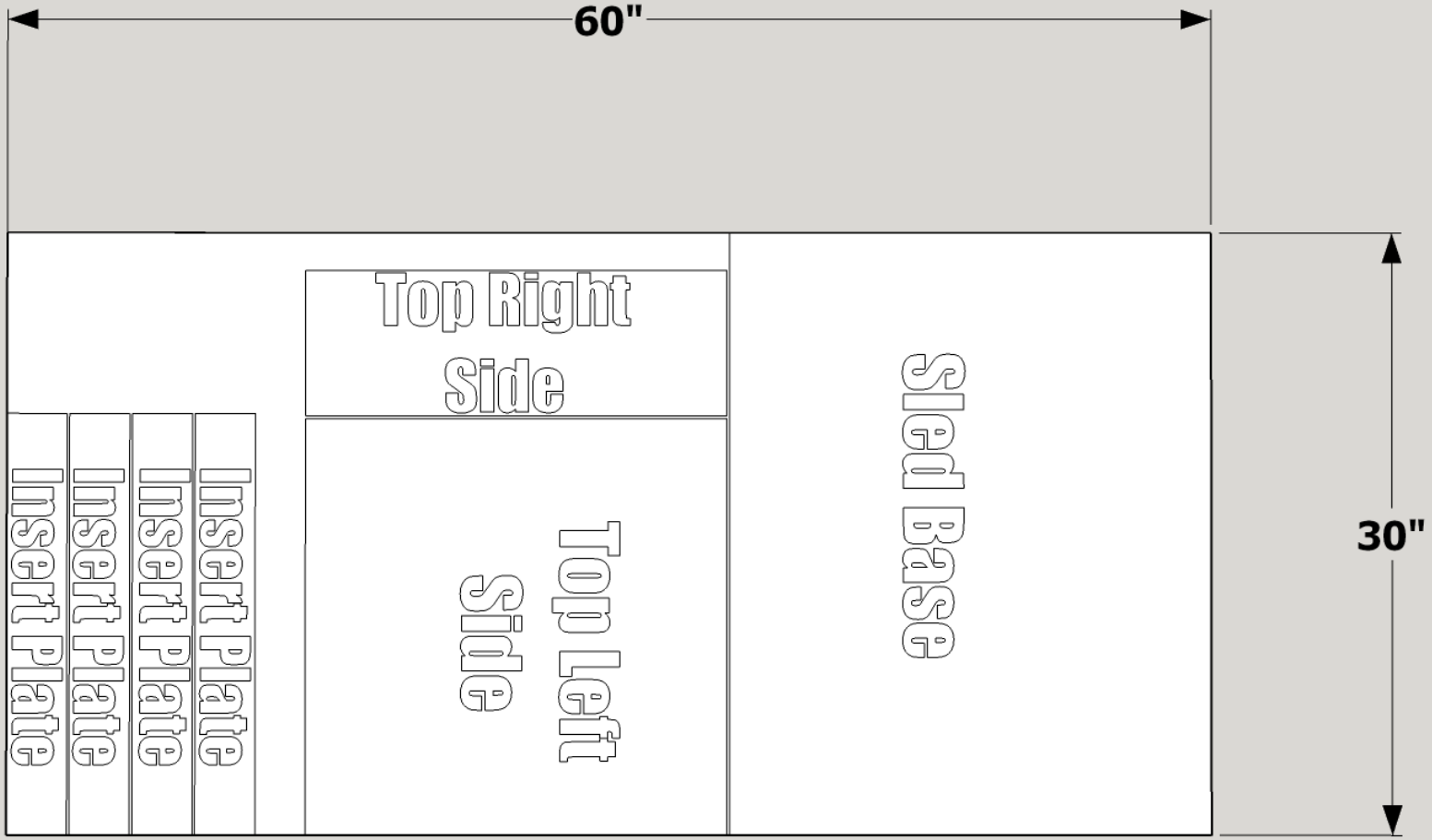
1/2" Baltic Birch ply



Extreme Table Saw Sled
Crosscut - Miter - Dado

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Created October 2017
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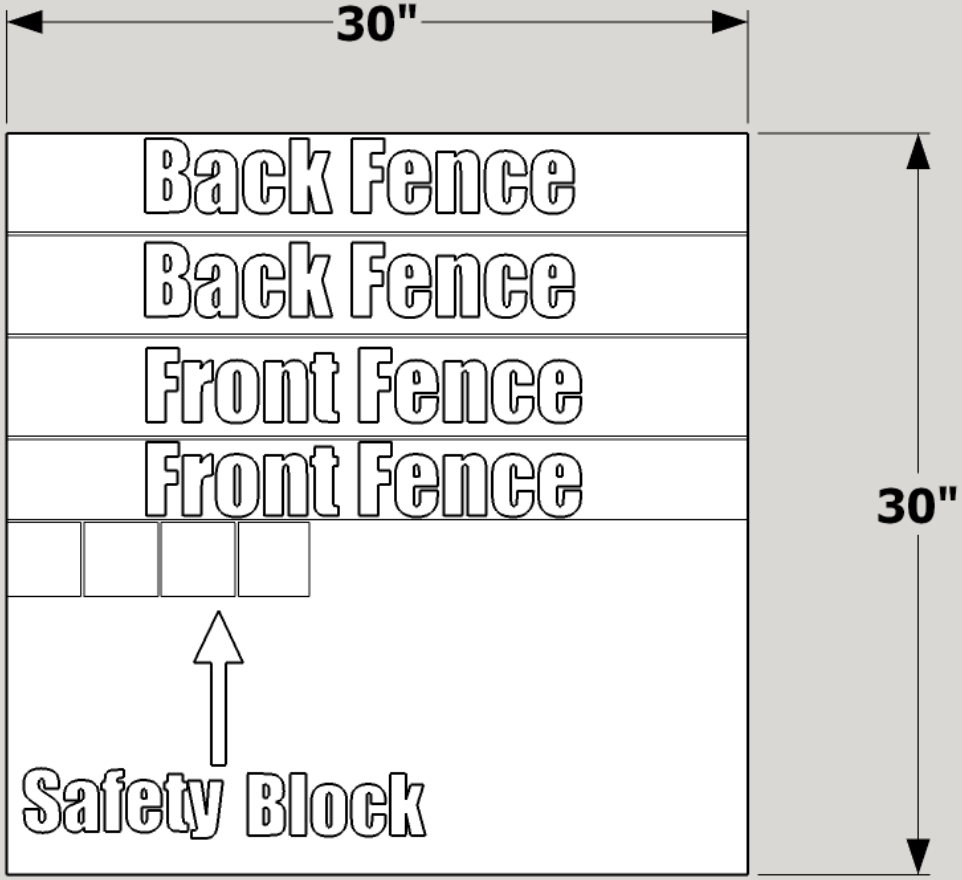
3/4" Baltic Birch ply



Extreme Table Saw Crosscut Sled Materials List:

1 ea 1/2”x30”x60” Baltic birch plywood

1 ea 3/4”x30”x60” Baltic birch plywood

(Only a 1/4 of this is needed)

Hold down clamps https://amzn.to/2Y9H2v8

Auto lock t-track hold down clamp https://amzn.to/3cvxlvT

(Rockler model no longer available)

Regular Toggle clamp https://amzn.to/371i7Oa

Large Toggle Clamp Foot https://amzn.to/2XAp3yB

Toggle clamp mounting plate https://amzn.to/2z5Hfa5

Aluminum miter bars 24”-30” https://amzn.to/3gXJ35W

Universal T-tracks https://amzn.to/3eROYaP

Kreg Top Track https://amzn.to/371fYSw

Kreg right to left measuring tape https://amzn.to/309crAb

Kreg Production Stop https://amzn.to/3gVxMD8

Socket Head Cap Screws https://amzn.to/3dCmFwO

Countersink Screws https://amzn.to/30cyKVU

Blind Nuts/T-nuts https://amzn.to/2MxpaVm

CA Glue & Actvator https://amzn.to/2zUuPSY

Titebond III https://amzn.to/2BB3Qw5

Minwax Paste Wax https://amzn.to/2XAjCjq

Countersink Bit https://amzn.to/2UdKuUe

Good Quality Economy Tap and Die set https://amzn.to/3eM69dU

Straight Edge clamp saw guide https://amzn.to/2ACYosa

Vix Bits (Self centering drill bits) https://amzn.to/3eTtWZG

Countersink Pre-drill bit https://amzn.to/2Ut6NWf

Tablesaw Dado Blade https://amzn.to/2z9OU7k

Forrest Woodworker II (best tablesaw blade) https://amzn.to/2XxMOaH

Forstner drill bits https://amzn.to/2MzXm2w

Extreme Table Saw Sled
Crosscut - Miter - Dado

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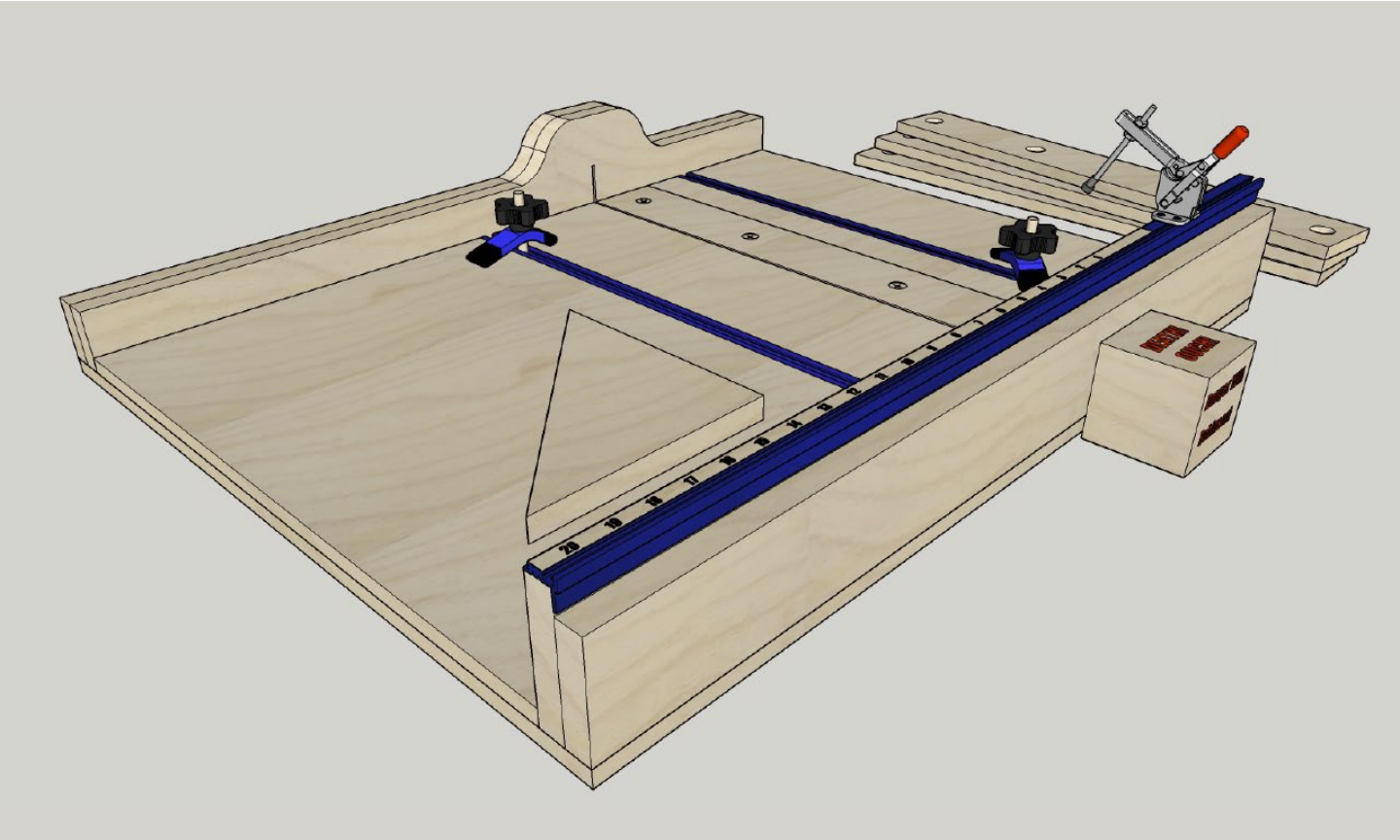
1. King's Fine Woodworking-39 Extreme Crosscut Table Saw Sled Build



1.1 Materials list, supplies, specialty tools

1 ea 1⁄2”x30”x60” Baltic birch plywood

1 ea 3/4”x30”x60” Baltic birch plywood

(Only a 1⁄4 of this is needed)

Hold down clamps https://amzn.to/2Y9H2v8

Auto lock t-track hold down clamp https://amzn.to/3cvxlvT

(Rockler model no longer available)

Regular Toggle clamp https://amzn.to/371i7Oa

Large Toggle Clamp Foot https://amzn.to/2XAp3yB

Toggle clamp mounting plate https://amzn.to/2z5Hfa5

Aluminum miter bars 24”-30” https://amzn.to/3gXJ35W

Universal T-tracks https://amzn.to/3eROYaP

Kreg Top Track https://amzn.to/371fYSw

Kreg right to left measuring tape https://amzn.to/309crAb

Kreg Production Stop https://amzn.to/3gVxMD8

Socket Head Cap Screws https://amzn.to/3dCmFwO

Countersink Screws https://amzn.to/30cyKVU

Blind Nuts/T-nuts https://amzn.to/2MxpaVm

CA Glue & Actvator https://amzn.to/2zUuPSY

Titebond III https://amzn.to/2BB3Qw5

Minwax Paste Wax https://amzn.to/2XAjCjq

Countersink Bit https://amzn.to/2UdKuUe

Good Quality Economy Tap and Die set https://amzn.to/3eM69dU

Straight Edge clamp saw guide https://amzn.to/2ACYosa

Vix Bits (Self centering drill bits) https://amzn.to/3eTtWZG

Countersink Pre-drill bit https://amzn.to/2Ut6NWf

Tablesaw Dado Blade https://amzn.to/2z9OU7k

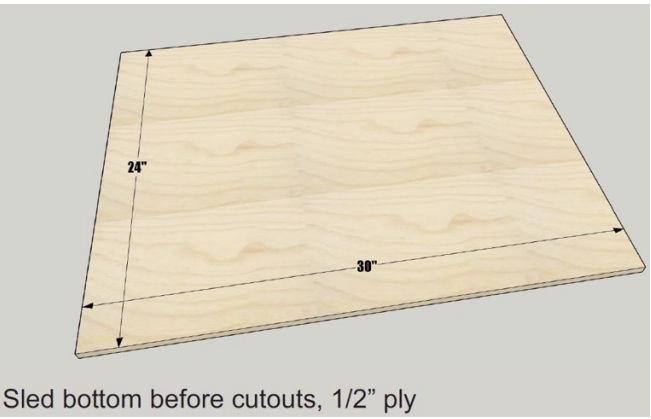
Forrest Woodworker II (best tablesaw blade) https://amzn.to/2XxMOaH

Forstner drill bits https://amzn.to/2MzXm2w

1.2 Tune-up your tablesaw

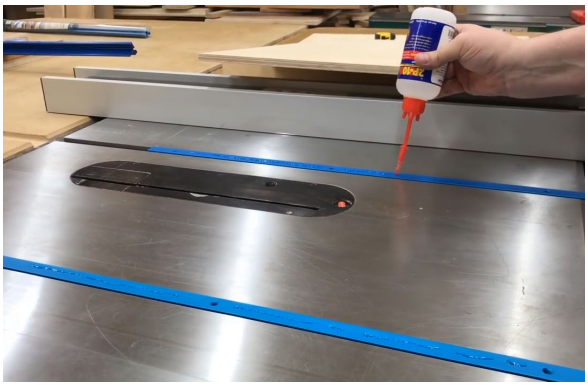
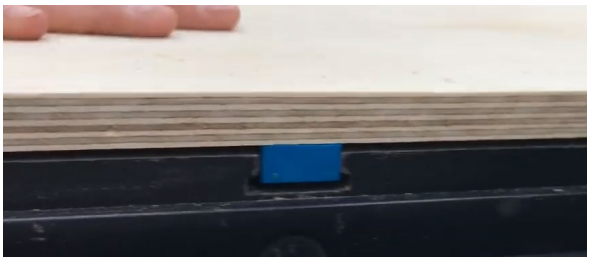
I highly recommend that you tune-up your tablesaw and ensure it is cutting accurately otherwise you will not get accurate cuts with the sled. I don't plan to cover the tune-up for the tablesaw in this build and suggest that you watch my video "81 - Table Saw Blade Alignment and Tune Up - Make PERFECT tablesaw cuts!" at https://www.youtube.com/watch?v=yccbzNyc8JQ&t=263s.

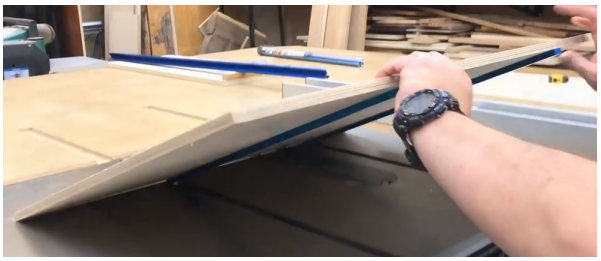
1.3 Project Assembly

 Sled bottom before cutouts, 1/2” ply	Side bottom before cutouts, ½” plywood, a slightly smaller ½” thick piece will be laminated to this. Cut to 30” x 24”

1.3.1 Miter Bar Setup

	Adjust the two 24" Aluminum Miter Bars to a snug fit in your table-saw miter slots.
	In each of the two miter slots place two stacks of two coins. I used pennies but any two coins that have a diameter less than ¾” will work. You will place the two miter bars on the coins, this should raise the top of the miter bars slightly above the table-saw table. If the top surface of the miter bars are not above the table surface, use thicker coins. They must be higher so they can be glued to the bottom of the sled surface.

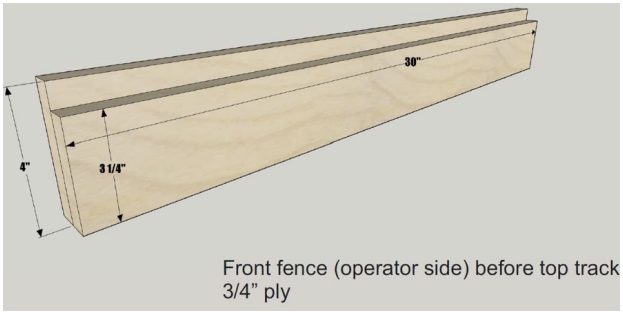
	Position and lockdown the table saw fence 10 1/8” to the right of the blade tooth. I’m assuming your blade tooth is 1/8” as mine is. Locking down the fence will ensure that bottom of the sled will be correctly positioned and not slide to the right. Position the miter bar ends such that they are very near the front-edge of the miter slots, in the same positions. Apply a small amount of CA glue to the top surface of each miter bar. Ensure that you DO NOT apply too much CA glue and then push glue down the sides of the miter bars and gluing them to the table top. This will not make for a good day. **NOTE**: You might feel more comfortable using double-sided tape rather than CA glue.
	Spray a little bit of CA activator to the bottom of the sled where the miter bars will be attached. This will set the glue and adhere the miter bars to the bottom of the sled in a few seconds after making contact. **NOTE**: You could draw reference lines on the bottom of the sled to identify the center of the area where the miter bars will be positioned. This will ensure you spray the CA activator in the correct area.
 	Just before you release the sled base on top of the miter bars ensure that: • The right-edge is against the fence • The front-edge is along the front-edge of the table saw The miter bars should not be projecting past either the front or back edge of the miter bars. Perfect alignment is not necessary, close is good enough.

 	After a few seconds you can lift up the bottom of the sled and the miter bars stay stuck to it.
 	I wanted to ensure the miter bars were securely attached to the bottom ½" thick base. • Drill a 3/16" hole all the through the bar and plywood. • Tap the hole with a ¼-20 tap Optionally if you have some water thin CA glue you could apply it to the threads in the wood and spray the threads with the CA activator.

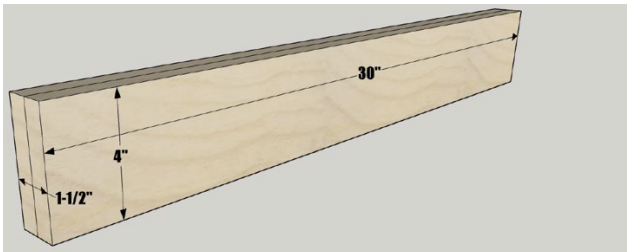
Use a countersink bit to ensure that the head of the screw will be below the surface of the miter bar.

Install 1/4x20 x 5/8” long screws.

1.3.2 Front and Back Fence Build



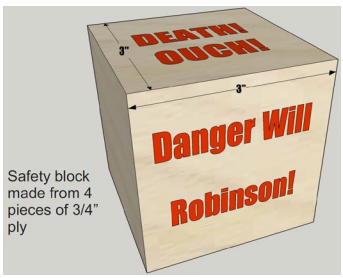
Front fence (operator side) before top track 3/4” ply



Back fence (side away from operator) before cutout 3/4” ply

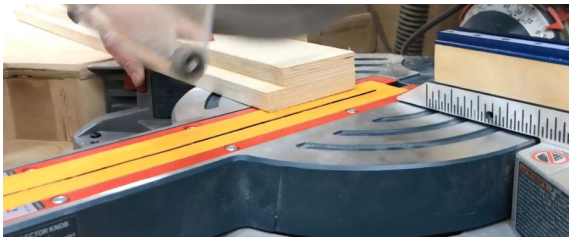
Build the front and back fences using ¾” Baltic Birch plywood.

- Each piece is 31” long, at this time we are cutting slightly longer by an inch. We’ll trim to the exact length later.
- Three pieces are 4” wide
- One piece is 3 ¼” wide

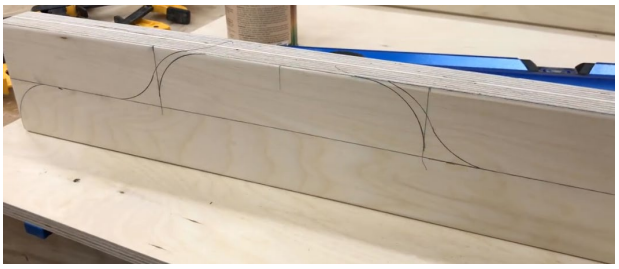


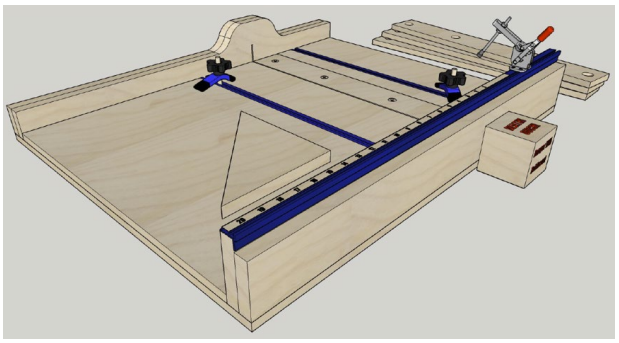
Safety block made from 4 pieces of 3/4” ply

At this time you can also cut the four pieces (3” x 3”) for the back safety block.

	Because we are gluing four pieces of ¾" plywood together the total distance is 3 inches. • Open the clamps just over 3" • Tear a piece of blue tape about 2-3/4" long • Place the tape on top of the clamp bar near flush with the top jaw. This will prevent any squeezes out from getting on the bar of the clamp.
	Glue two 4" wide pieces together and glue the other 4" wide and 3 ¼" together It is only necessary to apply glue to one board of each set and eliminate a lot of squeeze out. Let this set for 24 hours.
	After setting overnight, remove the bulk of the glue with a scraper.
	Make a series of quick thin passes over the joiner to ensure the bottom is flat on the front and back fence sections.
	Crosscut both ends where the final cut is to the exact length of 30". The back fence is stepped down ¾" on the back side to accept the Kreg Top Track. It will hold the measuring tape and a lockdown clamp.

	Sand the sharp edges on the two fences.
	A quick look at what the top track will look like after it is installed. It is made from Aluminum therefore later it will be cut to length on the miter saw.
	Now install the front fence to the base of the sled. **Note** that the ¾" dropdown is facing outwards as it should be. Later we will remove the fences to cut dado groves for some T-Track, thus DO NOT apply any glue to either fence.
	With the fence securely secured at both ends (I suggest using at least three clamps to securely hold the fence to the base), flip the base over, predrill and countersink one hole near each end. **Note** more screws will be installed later.
	Later after the back fence is properly adjusted so your cuts will be perfectly square, more screws will be installed.





To reduce the weight of the sled a bit, on the back fence sketch out a pattern, similar to the image on the left.

Note the height of the front fence where the blade passes through is the full 4” height.

Mark the side of the line to indicate the side the cutting blade should be on. You can make the cut with a bandsaw or jigsaw. I suggest that you cut to the outside of the line and then sand to the line.

Round over the edges with a 3/8” round-over bit.

Sand the round-over to remove any imperfections.

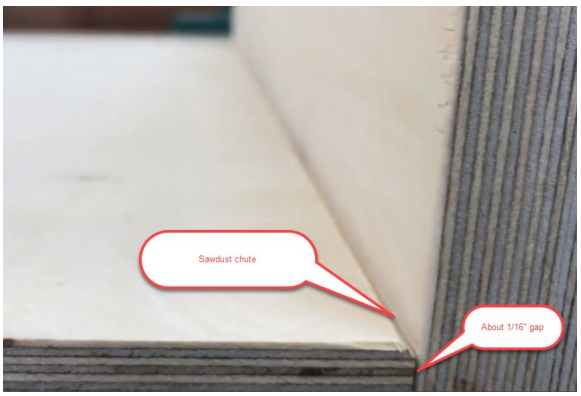
You are ready to mount the front fence with 1-3/4” long screws.

Because the front fence is not used for alignment just mount it flush with the edge of the base and edges.

As you did with the back fence,

- Clamp the front fence securely
- Flip it upside down
- Predrill for all the screws that will attach it to the base.
- Install the 1 -3/4” crews.

Note: Do not install any screws in the saw-blade area.

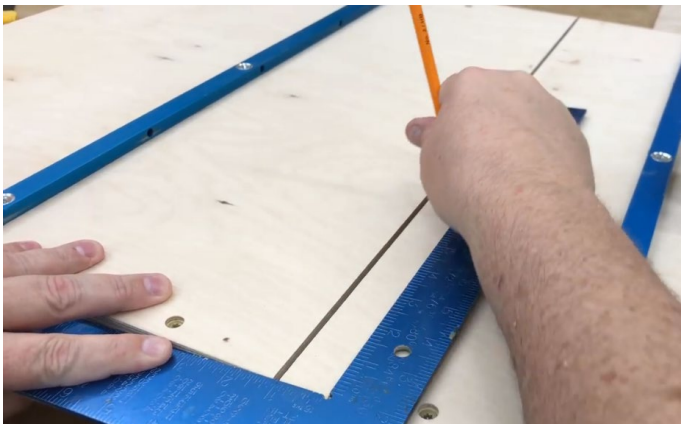
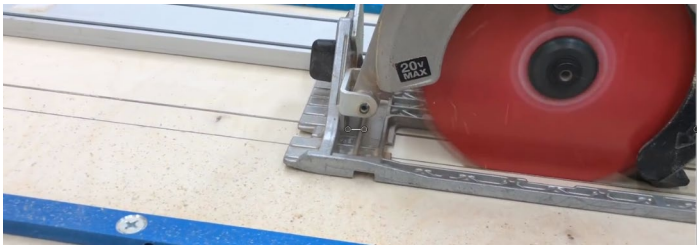
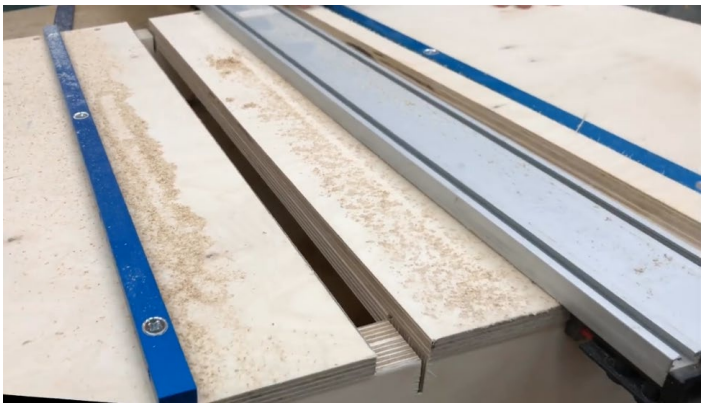
	Sand the bottom of the sled with 120 or 220 grit sandpaper. Later we will apply wax.
	Cut the upper (top) half of the base out of ½" Plywood. At this time we'll cut it to 20 1/2" x 21" and then slightly cut it smaller on the 20 1/2" side, if necessary, after a dry fit.
 	Cut a bevel on the side that will be back edge of the sled, e.g. the 20 1/2" side. This will act as a dust chute. Dry fit the piece you just cut between the front and back fences. Slide the piece so it is touching the front fence. The dust chute is all along and near the back fence. **Note** – there is a very small gap, no more than 1/16", between the upper ½" plywood and the back fence. The gap should be all along the fence. This is to ensure that later you can adjust the fence and get perfect square cuts. If you don't have a gap, trim the board on the 20 1/2" side as necessary and recheck.
	• Lower the saw blade below the table • Set the sled in the miter slots • Position the sled so the front-to-back middle area is over the blade. • Turn the saw on • Raise the sawblade until it cuts through the base • Turn the saw off, draw a reference line from the front fence to the back fence just to the left of the cut mark. This is the stop line for gluing in the next step.

	• Apply glue on the left side, up to the glue stop line.
 	Position the board such that • The outside edge is flush with the bottom outside edge • The board is against the front fence • There is a gap between the board and back fence • The dust chute is near the back fence. Apply weigh to the board and let it sit overnight.

1.3.3 Kreg Top Track Installation

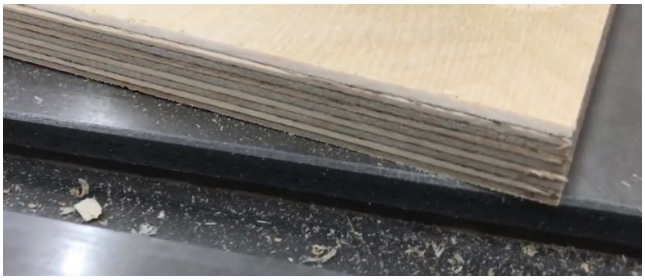
 	While the glue is starting to set you can install the Kreg Top Track. Because you may accidently reposition the board that you just installed it might be best to set the project to the side until tomorrow. • Mark the Kreg Top Track where if should be cut • Cut it using the miter saw • Use a file to remove the sharp edge of the cut • Position the Kreg Top Track on the fence • Use a Vix Bit (Self centering drill bits) to drill for the screws. In the video a normal drill bit was use.

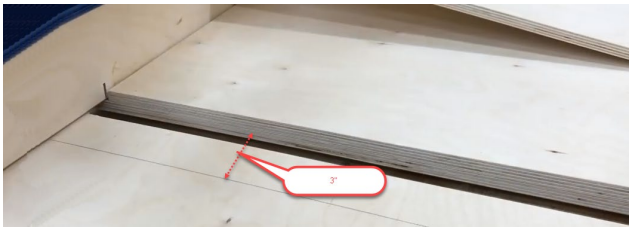
	Install #8 ¾” pan head screws to securely attach the Kreg Top Track NOTE: If the glue has not set overnight, it is time to set the project to the side and let the glue set overnight.
	Now it is time to make the cut all the way through the sled. NOTE: Be careful as the blade comes out at the back of the sled, currently the safety block is not installed.
 	The blade should be cutting through the entire bottom, e.g. front to back.

 	Now we need to flip the sled over and cut out a section for your Dado blade. Make the cut just a bit, 1/32” to 1/1”would be great, than your widest Dado blade setup. Clamp a straight-edge in place to guide the saw during the cut. Adjust the depth of the cut so you cut just the plywood in the bottom of the sled and not either fence.
	Now you have a perfectly cut slot for all the blades to pass through.
	Apply a coat of paste wax, let it dry and then buff it off. This will make the bottom of the sled very slick and allow it to slide easily across the tablesaw table.

Now let's cut the top board that will go on the other side of the sled.

- This cut will be 7 1.4" x 21"
- Cut a bevel on the 7 ¼" side for the dust shoot.
- Dry fit, place the top end against the front fence
- Check to ensure there is about 1/16" gap between the back end and the back fence. Cut as necessary if it is too long.





Measure and mark 3" from the edge of the two pieces of the base on the right.

Draw a line from the front fence to the back fence at the 3" mark.

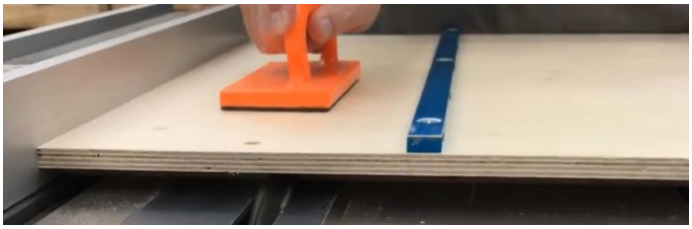
This will be the inside stop for the board just cut.

Dry fit the board in the area on the left, make the outside edges flush. If the board covers the line, again measure 3" from the double ½" plywood, mark the board and cut as necessary using the mark as the cut reference.

NOTE: As you are facing the board from the back fence you will make the cut on the right side of the mark.

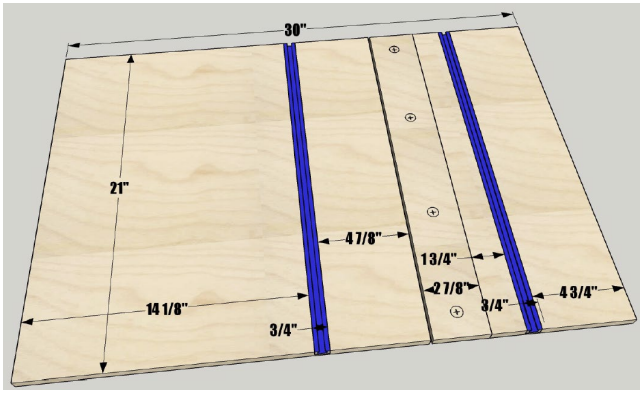
- Apply glue on the left section using the Advanced Kung Fu method.
- Use the penciled line on the board as the stop line for the glue.

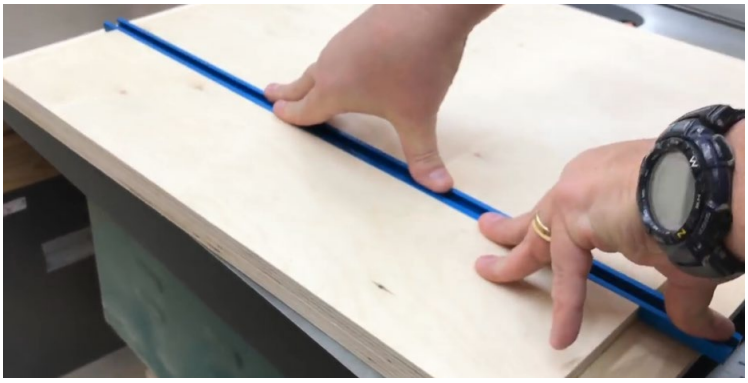
- Securely clamp the board
- Flip the sled over
- Drill about 8 evenly spaced holes, being careful not to go all the way through. Note the tape on the drill to indicate the depth.
- Also countersink each hole
- Install 8 #8 ¾” flat-head screws to secure the board in place.



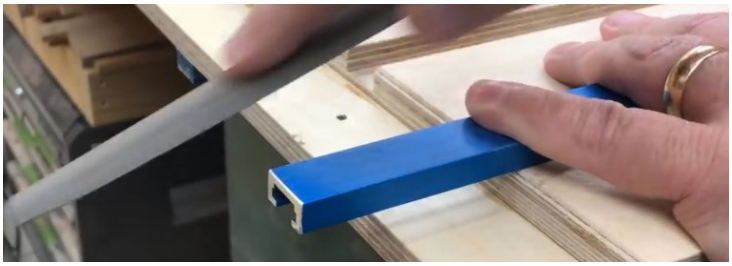
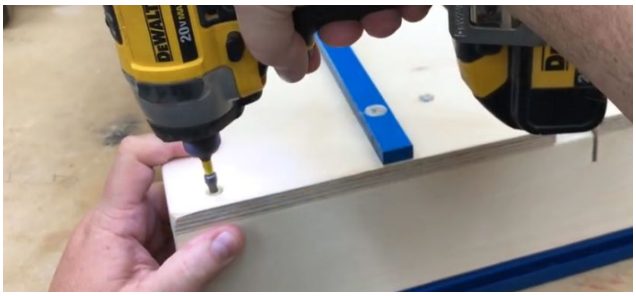
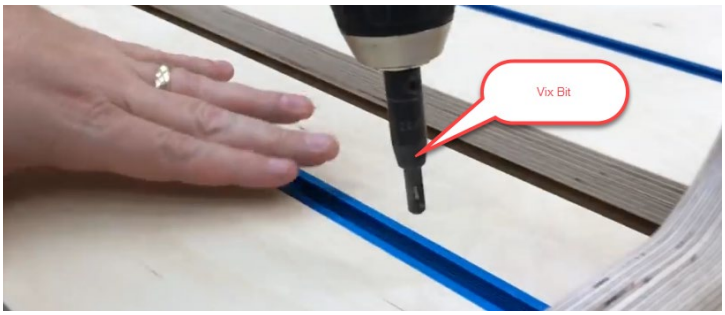
Now we’re going to cut two slots with the dado blade so we can install two pieces of T-track.

- Remove both fences
- Actual placement of the T-track is not critical but you can reference the following image.



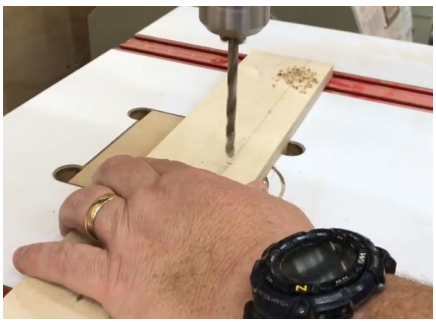
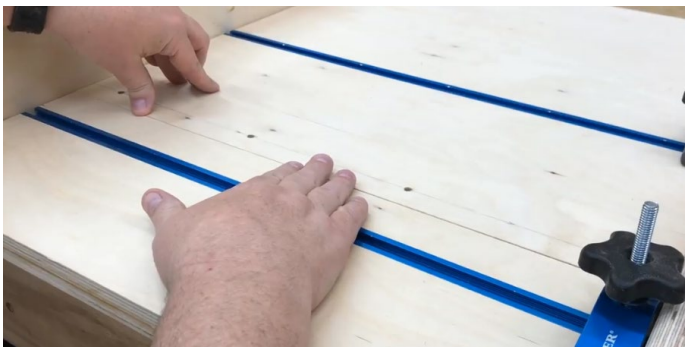


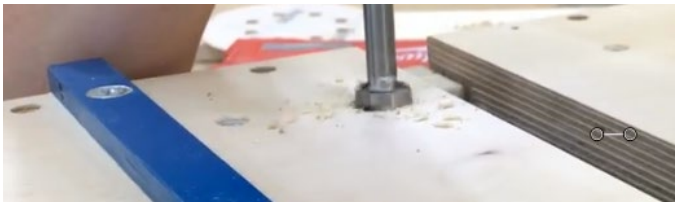
- Dry fit both T-tracks
- Mark each T-track as to where it will be cut. I suggest that you cut each T-track about 1/16” short thus ensuring it will not interfere with the fences.
- Use your miter saw to cut the T-track
- Miter cut the dust chute.

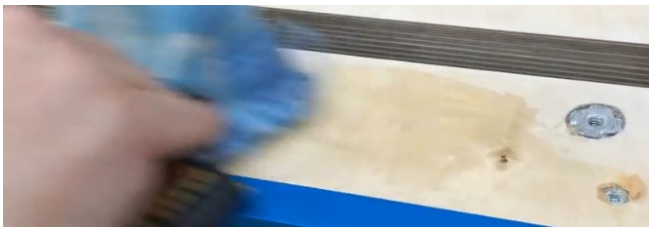
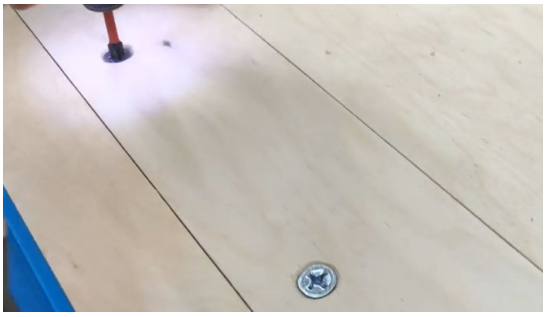
	File the sharp edges of the cut T-tracks.
	Reinstall both fences.
	• Flip the sled upright • Check to ensure the T-Track does NOT interfere with either fence. • Using a Vix bit, drill all the holes for the T-track • Secure the T-track with #8 ¾" flat head screws.

1.3.4 Zero clearance insert plates

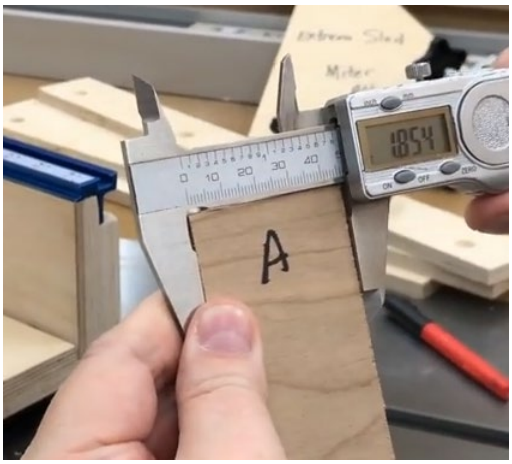
	Now it is time to cut the zero clearance insert plates. The design was created to accept a 3" wide plate just slightly shorter than 21". Cut several and bevel one end
	• Dry fit each insert plate, the bevel goes toward the back fence. • Make insert flush with the front fence • Check to ensure you have about 1/16" between the insert and the back fence. Cut as necessary.

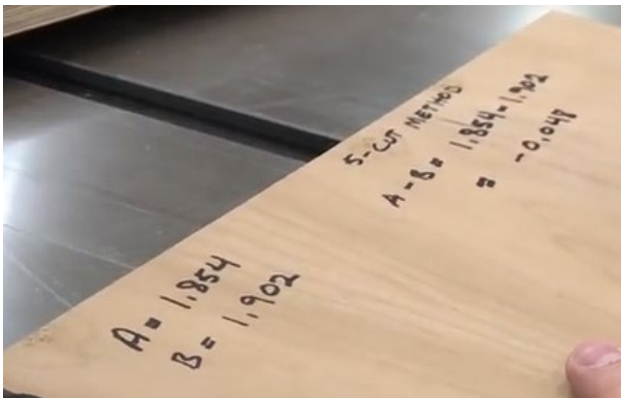
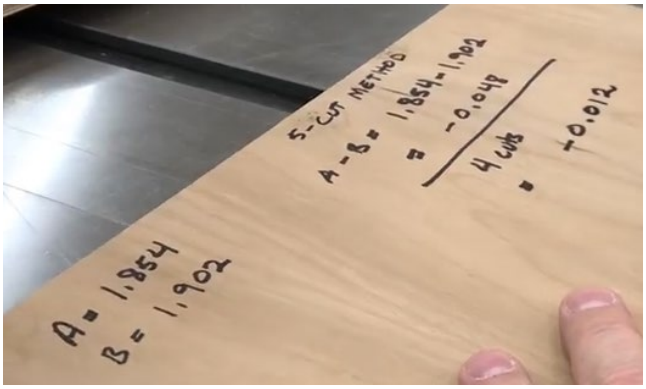
	Optional – to possibly make it easier to make inserts in the future. 1. Draw a line running the full length ¾” from the right edge. 2. On the line make a mark 2” from the top 3. On the line make a mark 2” from the bottom 4. On the line make a mark 7” from the top 5. On the line make a mark 7” from the bottom 6. On the top make a mark 1” down, centered. Here we will drill a hold to hang the slot on the wall for storage.
	For reference the top of the insert is the end that is flush with the front fence. On each insert: • Use a center punch or awl to create a guide to act as a pilot for drilling
	We’re going to be installing ¼-20 screws and T-nuts (blind nuts). Thus it is best if we drill with a bit slightly larger than the ¼-20” screw that will be going through the hole. Do this for all inserts. NOTE: The overall height of the T-nut must be 0.4” or less.
	• Place one of the inserts into position, remember the dust shoot goes toward the back fence. • Use the same drill bit to drill through the bottom base. This will ensure that the holes are in alignment.

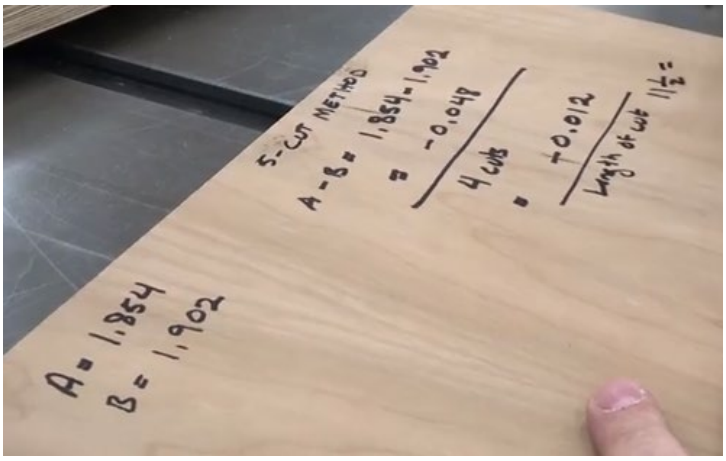
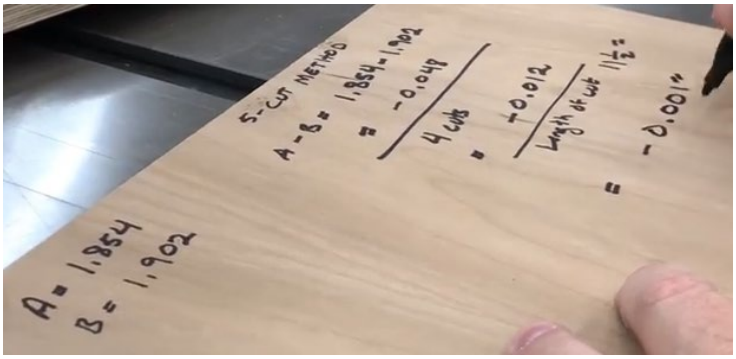
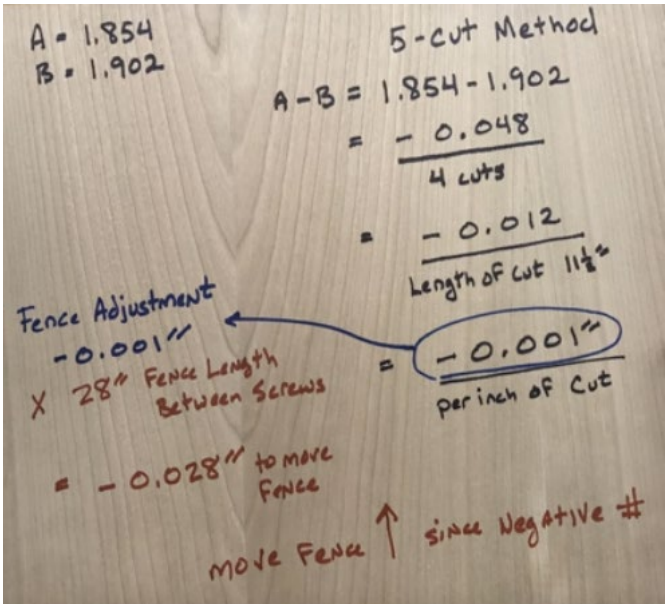
 	• Flip the sled over and now work from the bottom. • Measure the base diameter of the T-nut. • Use a forstner slightly larger than the diameter you just measured. • Drill a recess that is deep enough to ensure that no metal will project past the wood and rub against the tablesaw table. To ensure the recess is deep enough, turn the T-nut upside down and set it in the recess. • The flange of the T-nut should be below the wood. • Repeat this for the remaining three holes.
	Step-up in drill bit size so the T-nut will fit snugly in the hole. Repeat for the other three holes.
	Either hammer the T-nut into the base from the bottom or use three ¼" fender washers, one bolt ¼-20 1 inch long from the top side of the zero clearance plate and pull the T-nut into place. The fender washers will prevent the head of the bolt from sinking into the wood. Once the T-nut is in place remove the bold and fender washers. Repeat this for the other three holes.
	Put a small amount of CA glue at each T-nut spur. Spray the CA glue with the activator. Repeat for the other three T-nuts.

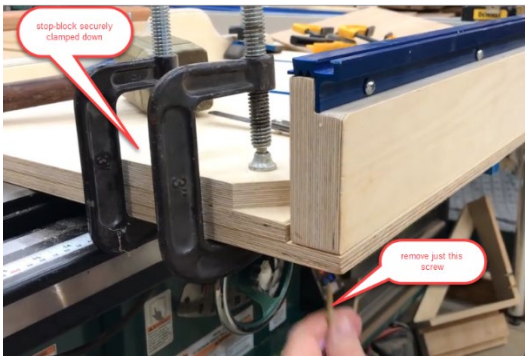
 	Time to sand the base where the hole were drilled, apply paste wax, let dry and then buff it.
 	Countersink each hole in each insert.
	Install four ¾” screws.
	Check and ensure the screws do not project past the surface of the base and rub the tablesaw table.

1.4 5-cut method to check squarness of tablesaw cut

	Identify all cuts to be made, e.g. 1 through 5. Start with any side as number one, then in a counter-clock wise fashion identify the remaining sides 2 through 5. Side five of course is also number one. Starting with number one, cut a thin strip, rotate the board so side one is against the fence, cut a thin strip from side two. Repeat for sides 3 and four.
	On side 5 cut a strip somewhere between 0.5” to 1.0”. Actual width is not important, you want it wide enough so you can easily measure the actual width.
	Mark the top of the strip “A” and the bottom “B”. The top is identified as the part that the saw blade first cut.
	Measure and write down the width of “A”, e.g. the top of the cut. In this example the results is 1.854.

	Measure and write down the width of “B”, e.g. the bottom of the cut. In this example the results is 1.902
	Subtract A minus B, note if B is larger, than you will have a negative number. It is important that you maintain the negative identifier. This determines which way you will adjust the fence. In this example 1.854 – 1.902 = -0.048 (note the results is negative. Negative means you will pivot the left side of the fence toward the blade. Positive means that you will pivot the left side of the fence away from the blade.
	After subtracting B from A, divide the results by 4. This is the number of cuts made before cutting the strip. In this example -0.048 / 4 = -0.012
	Measure and note the length of the cut strip. In this example, 11.5”

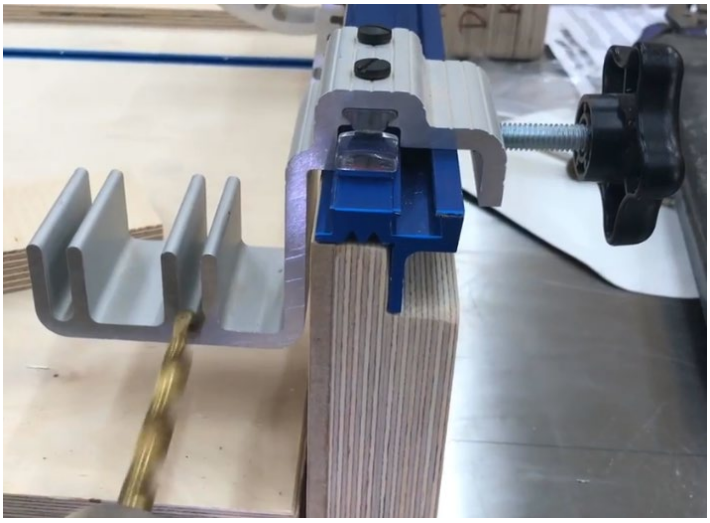
	Now divide the above results (-0.012) by the length. This will tell you the amount each cut is off per linear inch.
	In this example -0.012 / 11.5 = -0.001” (Fence Adjustment)
	In this example the distance between the pivot point in the fence and the far left reference point of the fence is 28”. To determine how much this reference point is to be moved, multiple the fence adjustment by this distance. In this example (-0.001) x 28 = -0.028” This is the amount we need to move the reference point on the fence toward the saw blade.

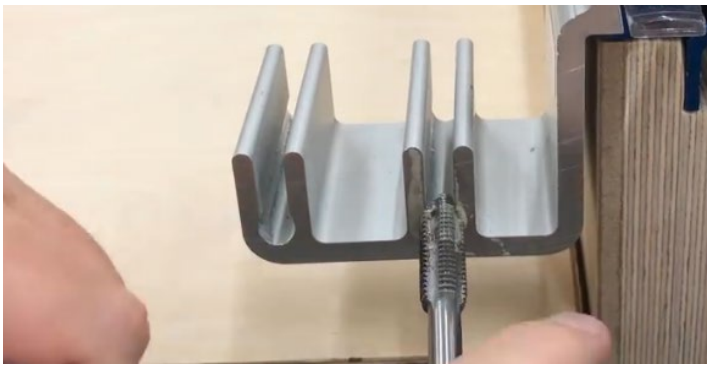
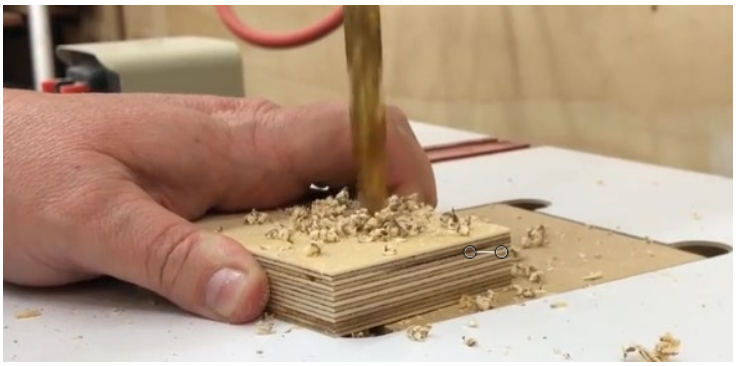
	You will need a set of feeler gauges to complete the precision adjustment. Using the above example we need to use the 0.005” and 0.025” blades for the 0.028” adjustment and move the left side of the fence forward toward the blade.
	Find a piece of scrap wood that is about 3 x 6. Cut one end so it has a sharp point.
	• Insert the feeler gauge between the sharp point and back fence. • When the feeler gauge has a snug fit lock down the block • Recheck the feeler gauge to ensure the block has not shifted. • Remove the feeler gauge.
	• Lock down the block with a second clamp • Remove the screw from the bottom that is holding the fence to the bottom. • Push the fence so it is snugly against the point of the block. • While holding the fence against the point of the block, secure the fence position with a clamp.
	• Drill a NEW hole for the screw, you CANNOT use the old hole. • Install a screw in the new hole • Repeat the 5-cut method again to check the adjustment • Cycle through the 5-cut method and fence adjustment until you are less than 0.002”

1.5 Safety Block Installation

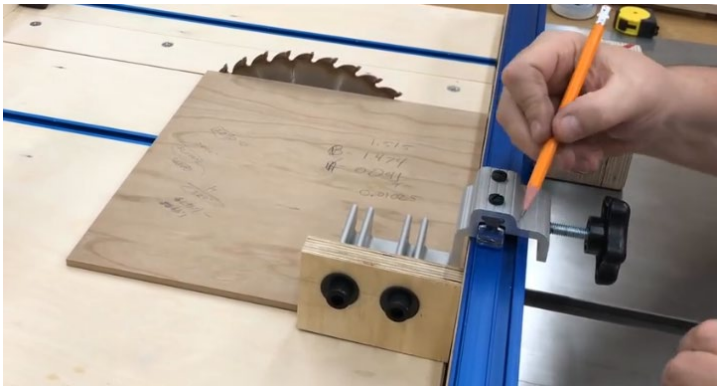
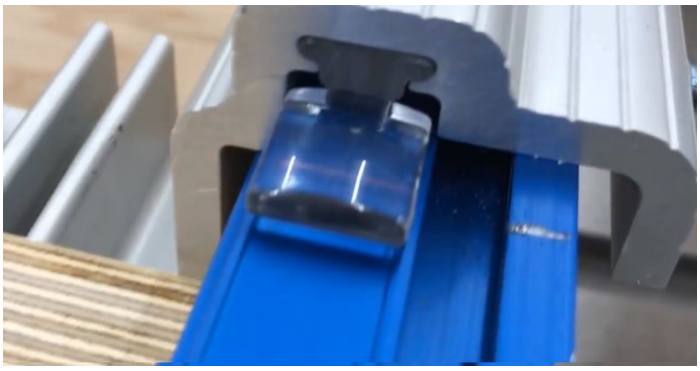
	If you have not sanded the safety block do so now. Set the sled in the miter slots.
	Apply a coat of glue to the safety block and spread it.
	Place the safety block up against the fence using the cut in the fence as your guide. **Note**: Put some paper under the block to ensure the glue does not get on the top of the tablesaw.
	• Securely clamp the block in place • Ensure the block has not slipped, correct it if necessary. • Predrill for the one or two screws, it may be necessary to first install one screw, move the clamp, predrill, and then install the remaining screw. **NOTE**: DO NOT install screws near the tablesaw blade path.

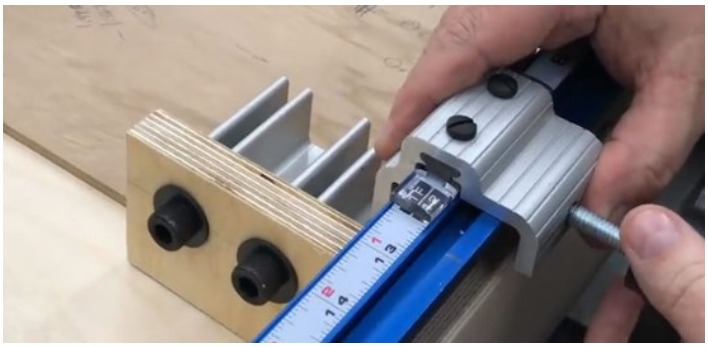
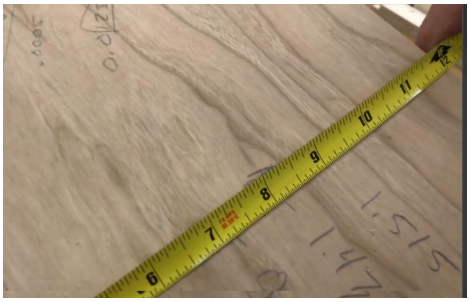
1.6 Stop-block

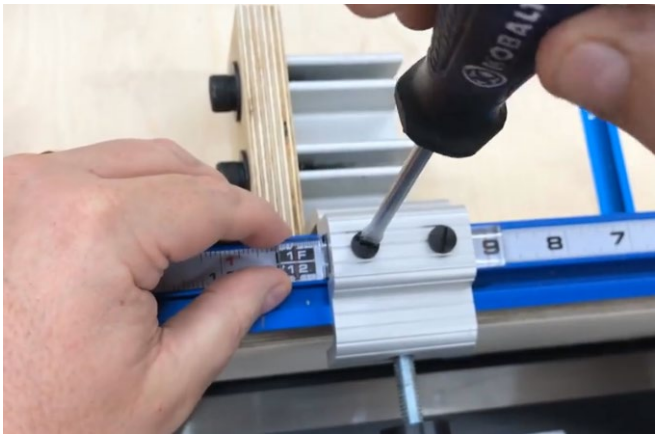
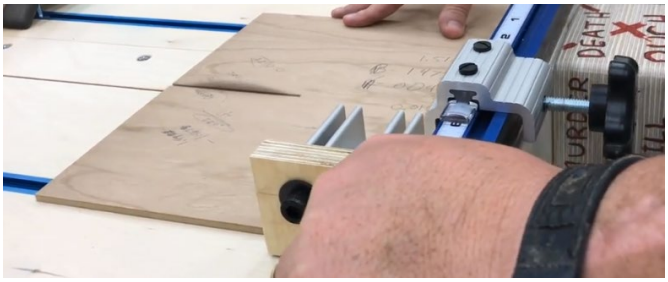
	• Place the Kreg stop on the back Top Track.
	• Here I switched gears and use metric because that is what fit best.
	  ○ 8.4mm drill bit
	  ○ M10x1.5 Tap
	  ○ 1.5mm pitch M10 x 35mm Hexagon Key Socket Cap head bolts
	  ○ Flat Washers for the bolts
	• Drill both slots about 1” deep

	Using the M10mmx1.5 tap, tap each drilled hole NOTE: The M10, is about 10 mm in diameter, (0,3937"), if you are converting a 10 mm to a fractional drill bit size you have two choices. 25/65 is a bit small or 13/32 is a bit big. If it is not a super precision part, use 13/32.
	• Cut a 3x3 ½ piece of plywood • Mark the plywood to indicate where you need to drill hole in order to mount the plywood on the Kreg stop • Drill two holes slightly larger in diameter than the diameter of the bolts. You want the bolts to easily slip through and a little play to ensure the base of the wood will be slightly above the sled.
	• Place a credit card where the block of plywood will rest on the sled, this will be your spacer • Place the plywood on the credit card and line-up the holes. • Install the two bolts and washers • Check to ensure the stop block will easily slide on the Top Track

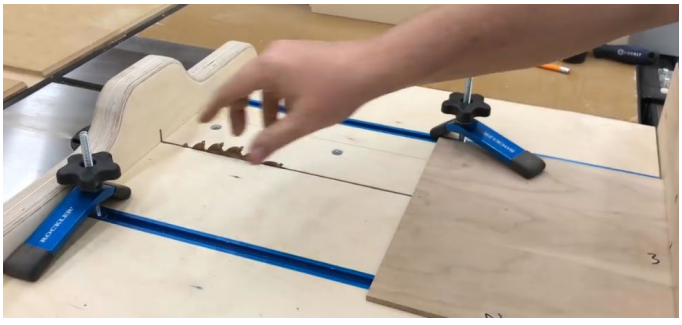
1.7 Installing the Measuring Tape

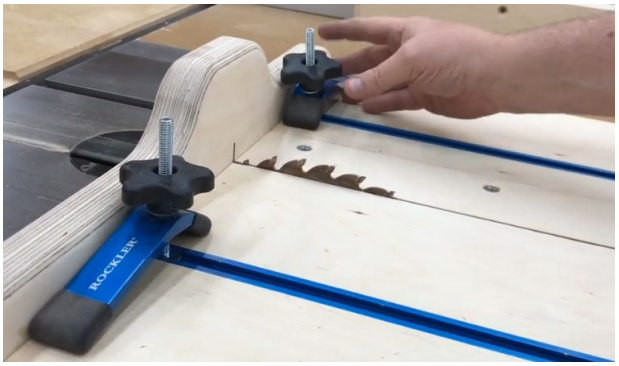
	• Find a piece of plywood that is about 12 ½” or 13” square. • Measure the width of the plywood • Lay it on the sled so the right side of the plywood is touching the blade • Slide the Stop-block so it is against the left side of the plywood • Lock the Stop-block in place
	• On the Top Track, mark where the hairline in the plastic is located • Remove the Stop-block
	• Using the width of the board you measured above • Apply the tape working toward the left with the measurement of the board at the pencil mark. At this time being close to the mark is good enough, shortly we will make it precise.
	• The tape is metal, thus you need a pair of tin snips. • Try to cut the tape just short of the end of the Top Track so it does not stick out and cut you. If you goof and make it too long just remove the excess with a file.

	• Go back to where you started applying the tape • Now apply the tape to the right. **NOTE**: The tape will NOT extend to the right end of the Top Track.
	• Move the stop to exactly 12” • Lock down the Stop block
	• Cut the board
	• Precisely measure the board

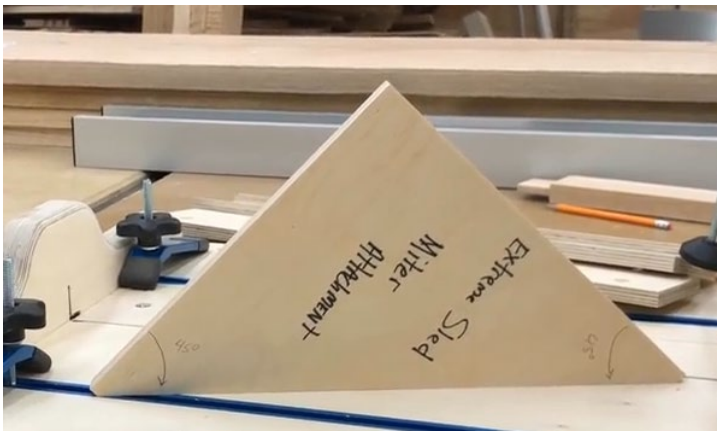
	• Loosen the bolt that is holding the plastic piece with the hairline. • Slide the plastic piece so the hairline is exactly over the measurement mark for the width of the board you just cut. • Lock the plastic piece down.
	• Now let's test and ensure the hairline is correctly positioned. • Set the hairline on the 3" mark, In the video I suggested using the 6" mark but using the digital caliber would to verify the width would be more precise. • Cut a board
	• With your digital caliber measure the width of the board. • Anywhere along the cut piece it should measure exactly 3" • Now you can cut to a precise measurement. **NOTE**: The locked down plastic piece with the hairline "should" not move but it would be good practice to periodically confirm that it is correct.

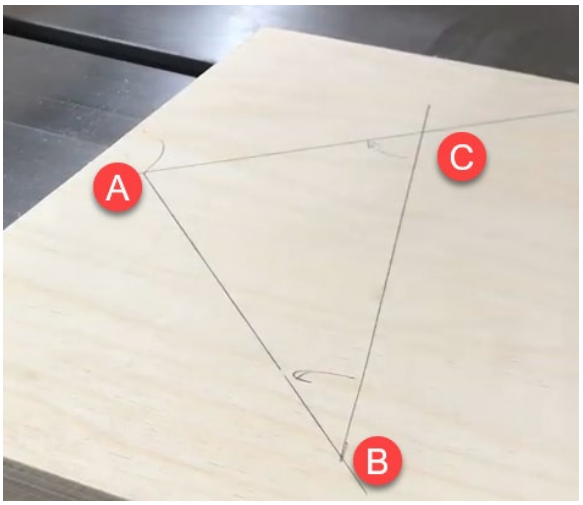
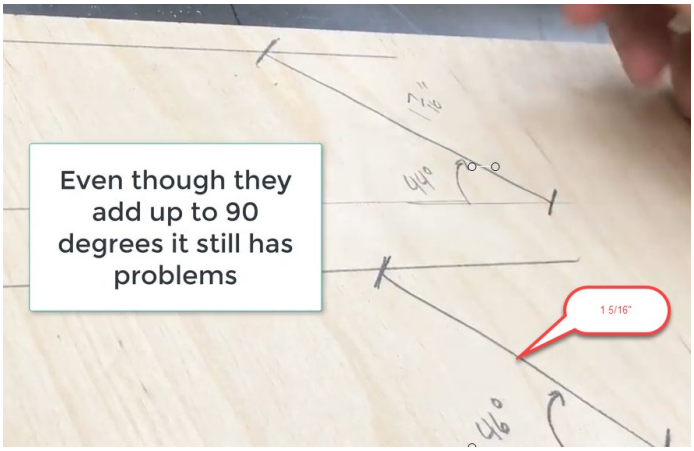
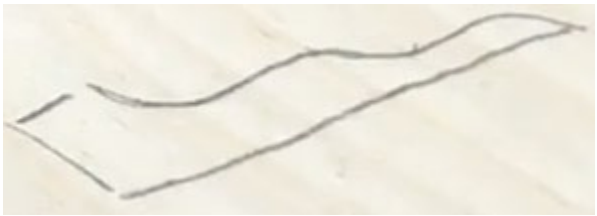
1.8 Using the hold-downs

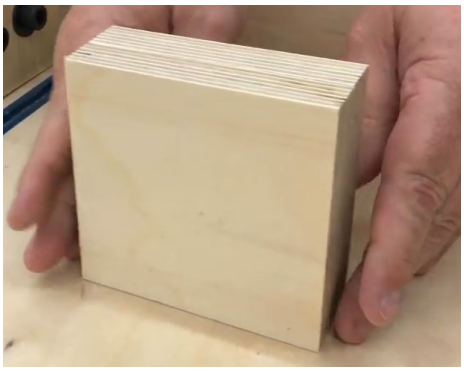
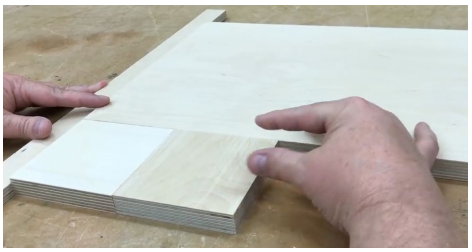
	There are several reason why you would want to use the hold downs. Safety is usually #1 when cutting small pieces.

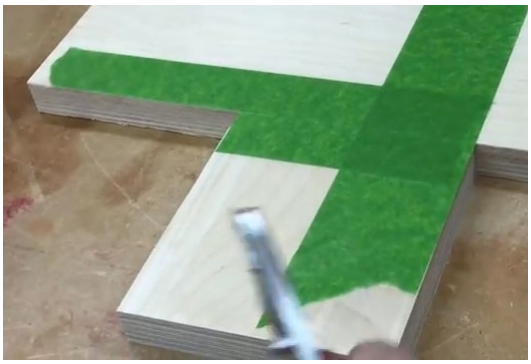
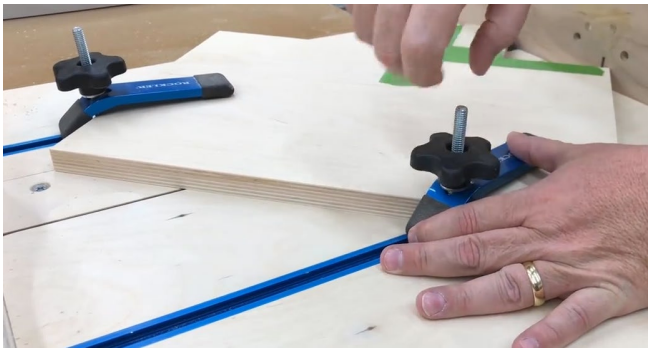
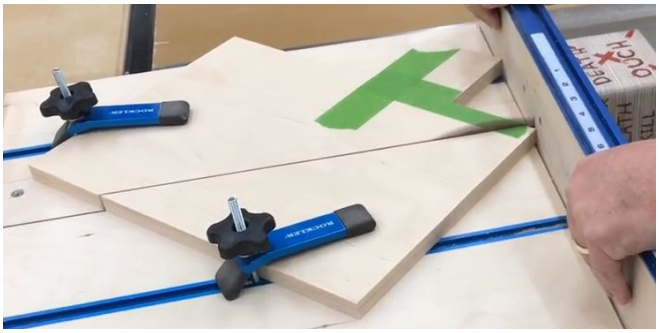
	Look ma, no way am I going to cut my finger(s)!
	When not in use, just lock them down at the front of the sled.

1.9 Make perfect 45 degree cuts

	• “A” is 90 degrees • “B” and “C” are NOT 45” • For your miter sled it is critical that “B” and “C” are each 45 degrees.
	• In this example I have two boards, the same width represented by the four horizontal lines. • In this example if one angle is 44 degrees and the distance between the two points is 1 7/16”. • The other angle is 46 degrees the distance between the two points will be shorter because the angle is steeper, e.g. the slope of the line is steeper.
	If you place the two cuts together the two sides along the cuts will NOT line up correctly even though the total angle is 90 degrees.
	Furthermore if the two pieces have a contour then the contours will not line up correctly. Let’s make an exact 45, 45, 90 triangle

	Cut two squares where all four sides are the same length. Any thickness of wood will do. I used ¾”.
	The actual length of the sides is not important, they just need to be the same length.
	• Put the two squares together • Place them in alignment with the left edge of a larger board and adjacent to the bottom of the larger board. • The larger board will be cut to make our 45, 45, 90 triangle. • Size of the larger board is not important, just ensure it will fit on the sled.
	• Tape the two boards together as in the image on the left • The square on the right will stay inplace.
	• Cut the tape along the two seams of the square on the left, it has served its’ purpose of a spacer.

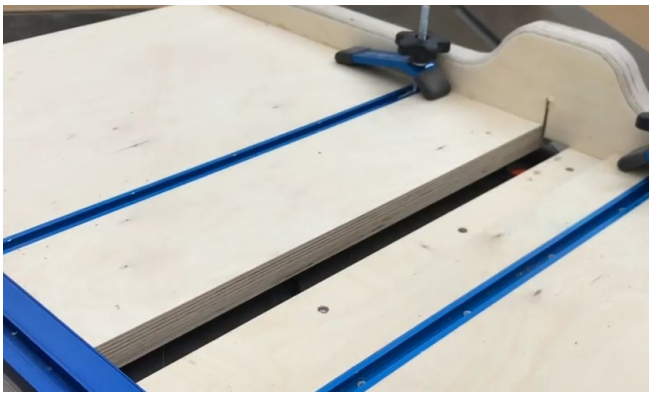
	• Remove the left square. • Note that the void is a perfect 45, 45, 90 triangle.
	• Place the two corners of the void against the back of the fence. • Slide the two boards left/right to position the larger board where you want it cut. The actual position of the cut is not important. • **NOTE** that the large board is 45 degrees to the blade.
	• Clamp the larger board with both clamps.
	• Cut the larger board • You now have a perfect 45, 45, 90 degree triangle.

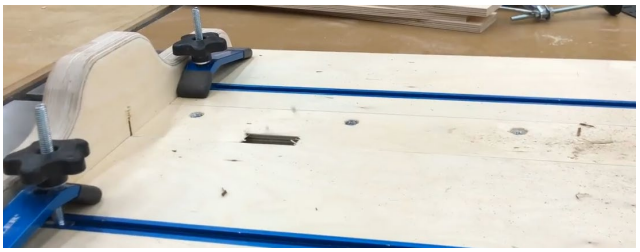
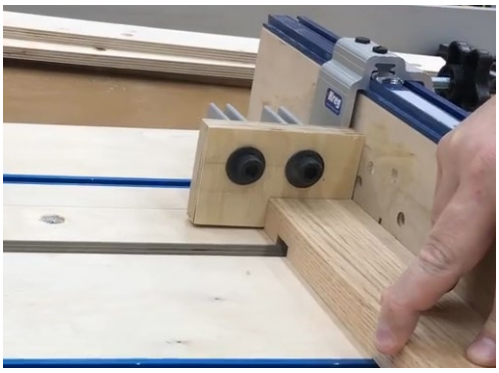
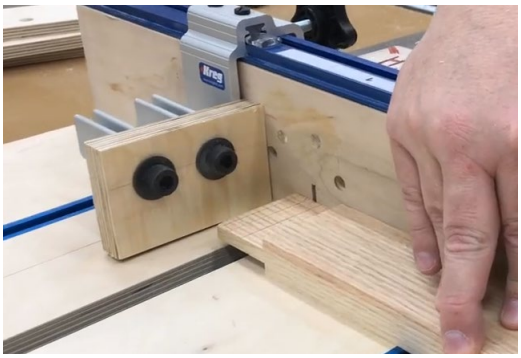
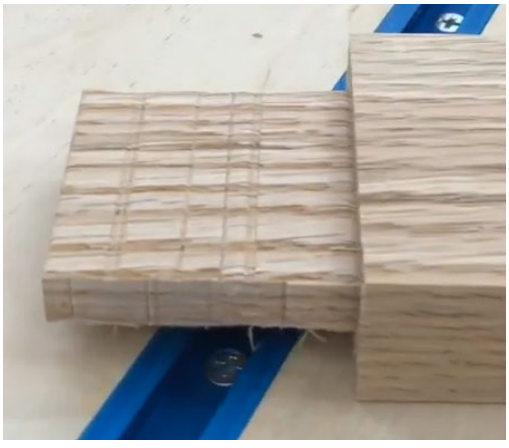
	• You can check the angle with your combination square and it will be right-on.
	• Let's make a small frame to test • Cut four pieces of frame molding where either all four pieces are the same length or you have two pieces of equal length (top and bottom) and a 2nd pair of another equal length (the two sides).
	• Position the 45, 45, 90 board so the tip of one 45 is very near or just past the left edge of the blade. It is OK if you cut the triangle board, just don't cut too much. • Clamp the triangle in place. • Slide a piece of the frame against the triangle and the end is just touching the back fence. • Clamp a piece of frame in place. • Cut only one end of each piece.
	• Position the triangle on the right side. • Position the tip either just to the right of the blade or slightly past the right of the blade. Again it is OK if you cut the tip of the triangle. • Clamp the triangle in place. • Slide a piece of the frame against the triangle and the end is just touching the back fence. • Cut the uncut end of each frame piece.

	All eight ends have been cut
	Lay a piece of masking tape, sticky side up, longer than the four sides of the frame added together on some clean flat surface.
	Lay the four pieces of the frame, end-to-end in the correct order on the sticky tape.
	Pick up the ends, fold everything together and check the fit.

	And we have success. This is the simplest, most accurate way to make picture frames that I know of. It is even more accurate than my Incra 5000.

1.10 Dado Cuts

	The removable insert plate has been removed.
	Because I've not used the sled for a dado cut I will install a new removable insert plate.

	Prior to placing the sled on the table saw: • I installed the dado set to the correct thickness. • In this image I've placed the sled on the saw and I'm rising the dado blade to cut through the sled.
	• Move the stop to the right side of the fence • Set the stop to the desired position for the length of tenon I'm looking for. • Check the height of the cut.
	• Make your first cut • Rotate the board cut the next side • Repeat for the other two sides.
	• Slide the board to your left and remove the wood from the tip of the tenon. • Repeat for each side.
	In less than two minutes