

# Classical Jewelry Box

These Instructions are available to members of the Valley Woodworkers of West Virginia free of charge. However, they may be used only to make items for your own use. Use of these instructions to make items for sale is prohibited.



This jewelry box consists of five main components: The Top; the Box consisting of the Front and Sides; the Bottom; the Molding and the Base. Inside the jewelry box there are dividers and a ring holder. For the most part, these items do not need to be made in any particular order. The Box is made of 5/8" thick stock and uses 45° splined miter joints. The Molding, which is used to join the Box to the Base has 45° miters in the front, which are reinforced with biscuits. The back portion uses mortise and tenons to join the back to the sides. The Base is a Roman Ogee shape with 45° splined miters. It is made from lumber 1-1/8" or thicker. The 3/4" thick back of the Base is screwed to the sides. The Top can be a single board or several boards glued together. It can be as plain or fancy as you like, but a pretty board is preferred. The Top should be made of quarter sawn or riff sawn lumber to minimize the potential for cupping.

# Classical Jewelry Box

## PPE Required:

- Safety Glasses with side shields
- Hearing Protection
- Dust Mask
- Apron (optional)
- Tight fitting gloves (optional)

## Machinery and Tools Used:

- Jointer
- Planer
- Wide Belt Sander
- Table Saw
- Radial Arm Saw
- Shaper
- Band Saw
- Spindle Sander
- Mortising machine with 5/16" chisel and bit
- Biscuit jointer
- Small router with 3/4" guide bushing and 1/4" bit
- 10" 40 Tooth ATB Saw Blade
- 10" Flat Top Saw Blade
- 8" dado set
- (2) Band Clamps

## Materials required

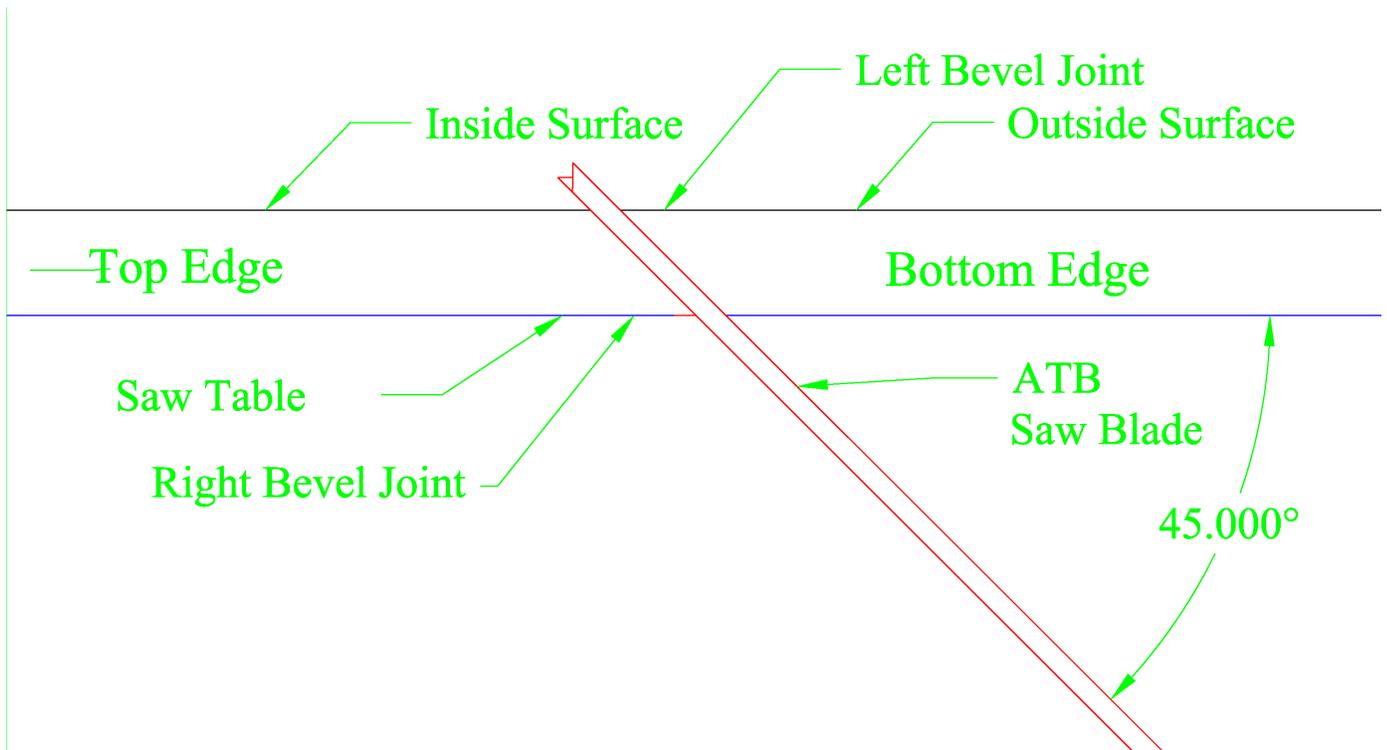
- Top – 4/4 12" wide x 19" long
- Sides – 4/4 4" wide x 72" long
- Molding – 4/4 3-1/2" wide x 72" long
- Base - 5/4 (or 6/4) 2" wide x 48" long; 4/4 2" wide x 20" long
- Bottom – 1/4" nominal hardwood plywood 12" wide x 16" long
- Glue – Type III or liquid hide glue
- (2) Brusso Solid Brass 1-1/4" stop hinge JB-103 ([www.brusso.com](http://www.brusso.com)). DO NOT SUBSTITUTE.
- (2) Brusso hinge template TJ-103 (provided by pph)
- (4) #4 x 1/2" FH Phillips Brass screw.
- Scrap lumber for setups

## 1) Make the Box:

- CAUTION!** Slide the miter fence to the left as needed to ensure that it will not contact the saw blade.
  - NOTICE!** Tape measures provide approximate measurements and are appropriate for rough dimensions. In order to obtain accurate measurements, use a Starrett ruler or square. Draw layout lines with a layout knife or 0.5mm pencil.
- b) Make the front, back and sides

# Classical Jewelry Box

- i) Install the 40 T ATB saw blade.
- ii) Cut stock to ~ 60" long x 4" wide.
- iii) Joint one face and edge.
- iv) Plane to 21/32" (0.656) thick.
- v) Use the wide belt sander with 120 and 150 grit belts to bring the final thickness to 5/8" thick.
- vi) Rip the boards to 3-1/2" + 1/32" (3-17/32") wide.
- vii) Joint 1/32" off the sawn edge to yield a 3-1/2" wide board.
- viii) Make 45° flip stops:
  - (1) Prepare two spacers about 3/4" square and 6" long.
  - (2) Set the angle of the saw blade to 45° using a digital protractor (The workshop SawStop saws have a travel stop at 45°. If these saws are used, this step is not necessary. The protractor must be held perpendicular to the blade using a miter gauge. In addition, the blade should be up as high as possible.
  - (3) Lower the blade to about 1" above the table.
  - (4) Cut a 45° bevel on one end of each spacer.
  - (5) Using double sided tape, attach one spacer to each of the flip stops on the fence. Orient the spacers so that the 45° bevel is facing the blade when the fence is aligned with the saw arbor.
- ix) Layout the front, back and sides of the Box board so that the grain wraps around the Box. That is: front, right side, back, left side. Make the marks on the bottom edge of these boards.
- x) Lightly draw a line across the top of the Box board to identify it as the outside face of the Box.
- xi) **NOTICE! In order to have the grain wrap around the Box, all bevel cuts must be made in sequence (e.g. Left side, Front, Right side, Back). This requires that the left-hand bevel be cut with the outside face against the saw table and the board to the right of the blade; The right-hand bevel must be cut with the inside face of the board against the saw table and to the left of the saw blade.**



# Classical Jewelry Box

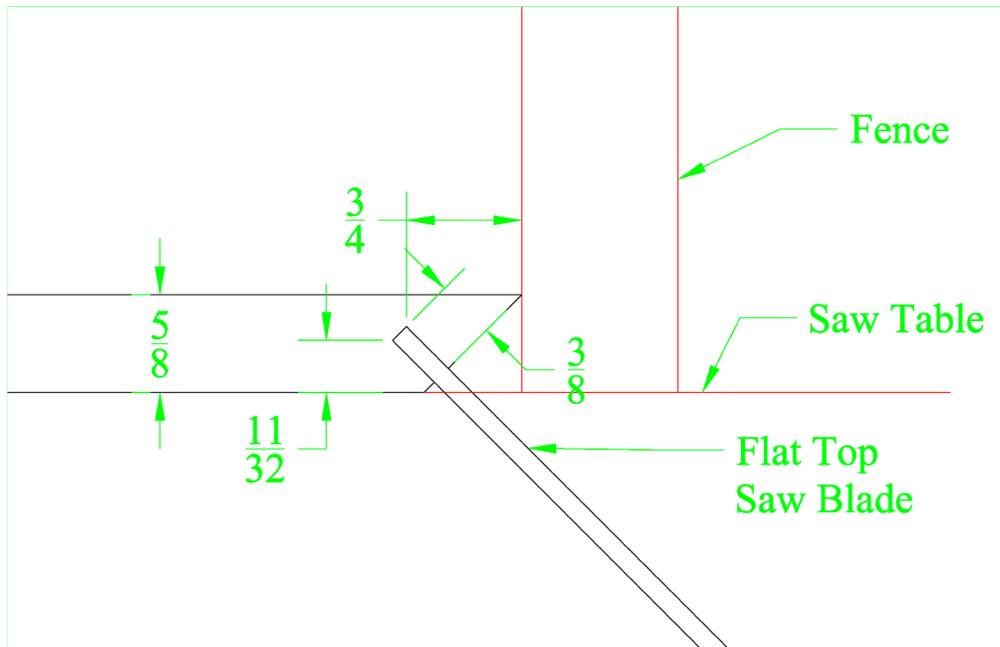
- xii) NOTICE! In order for the Box to have miter joints without gaps, two conditions must occur: The bevel angles must be 45.0° and: the opposite sides must be the exact same length. For this operation, we will first cut each piece slightly oversize and then use fence stops to ensure that the opposite sides are the same length.**
- xiii) Clamp a sacrificial wood fence to the miter saw fence that is about 1-1/2" thick, 3" high and 48" long. Position the sacrificial fence so that it extends past the miter fence by about 24".
- xiv) Pass the miter fence through the blade. The resulting kerf will be a reference point.
- xv) Cut boards to approximate length (1/16" oversize) with a 45° bevel on each end:
- (1) Cut the Left-Side:
    - (a) With the bottom edge of the board against the sliding table fence the inside face against the saw table and the board positioned to the right of the blade, cut a 45° bevel on the left end of the board.
    - (b) Using a 24" combination square, make a mark on the outside face 10-9/16" to the right of the acute angle of the bevel just cut.
    - (c) Use a square to draw a layout line across the Box board that passes through this mark.
    - (d) Flip the Box board end-for-end so that it is to the left of the blade with the outside face against the saw table and the top edge against the fence.
    - (e) Use a 45° bevel square to draw a line from the layout line to the inside face of the Box board.
    - (f) Use a square to extend this layout line across the inside face of the board
    - (g) Position the Box board with the layout line against the left-hand side of the saw kerf in the fence.
    - (h) Cross cut a 45° bevel on the end of the Box board. Mark this board as the Left-Side of the Box.
  - (2) Cut the Front:
    - (a) Turn the Box board outside face up, bottom edge towards the fence and to the right of the blade. Taking off no more material than necessary, trim a 45° bevel on the left end.
    - (b) Using a 24" combination square, make a mark on the top face 16-1/16" to the right of the apex of the bevel.
    - (c) Use a square to draw a layout line across the Box board that passes through this mark.
    - (d) Flip the Box board over so the outside face is against the saw table and the top edge is towards the fence.
    - (e) Use a 45° bevel square to draw a line from the layout line to the inside face of the Box board.
    - (f) Use a square to extend this layout line across the inside face of the board
    - (g) Position the Box board with the layout line against the left-hand side of the saw kerf in the fence.
    - (h) Cross cut a 45° bevel on the end of the Box board. Mark this board as the Front of the Box.
  - (3) Cut the Right Side of the Box:
    - (a) Turn the Box board outside face up, bottom edge towards the fence and to the right of the blade. Taking off no more material than necessary, trim a 45° bevel on the left end.
    - (b) Using a 24" combination square, make a mark on the top face 10-9/16" to the right of the apex of the bevel.
    - (c) Use a square to draw a layout line across the Box board that passes through this mark.

# Classical Jewelry Box

- (d) Flip the Box board over so the outside face is against the saw table and the top edge is towards the fence.
  - (e) Use a 45° bevel square to draw a line from the layout line to the inside face of the Box board.
  - (f) Use a square to extend this layout line across the inside face of the board
  - (g) Position the Box board with the layout line against the left-hand side of the saw kerf in the fence.
  - (h) Cross cut a 45° bevel on the end of the Box board. Mark this board as the Right Side of the Box.
- (4) Cut the Back of the Box:
- (a) Turn the Box board outside face up, bottom edge towards the fence and to the right of the blade. Taking off no more material than necessary, trim a 45° bevel on the left end.
  - (b) Using a 24" combination square, make a mark on the top face 16-1/16" to the right of the apex of the bevel.
  - (c) Use a square to draw a layout line across the Box board that passes through this mark.
  - (d) Flip the Box board over so the outside face is against the saw table and the top edge is towards the fence.
  - (e) Use a 45° bevel square to draw a line from the layout line to the inside face of the Box board.
  - (f) Use a square to extend this layout line across the inside face of the board
  - (g) Position the Box board with the layout line against the left-hand side of the saw kerf in the fence.
  - (h) Cross cut a 45° bevel on the end of the Box board. Mark this board as the Back of the Box.
- (5) Cut the Box boards to final length:
- (a) Remove the sacrificial fence.
  - (b) Cut the sides to final length:
    - (i) Use a combination square to make a mark on the top of the Left Side that is 10-1/2" from the acute angle of the board.
    - (ii) Use a 45° bevel square to extend this line to the inside surface of the board.
    - (iii) Place the board outside surface down, to the left of the blade.
    - (iv) NOTICE! The saw cut alignment lines scribed on the saw table are not accurate when cutting bevels.**
    - (v) Position the right fence stop so that the layout line is at the inside edge of the saw blade.
    - (vi) Cut the Left Side bevel.
    - (vii) Without changing any settings, place the Right Side outside surface down and against the fence stop and cut the bevel.
  - (c) Cut the Front and Back to final length:
    - (i) Use a combination square to make a mark on the top of the Front that is 16" from the acute angle of the board.
    - (ii) Use a 45° bevel square to extend this line to the inside surface of the board.
    - (iii) Place the board outside surface down, to the left of the blade.
    - (iv) Position the left fence stop so that the layout line is at the inside edge of the saw blade.
    - (v) Cut the Front Side.
    - (vi) Without changing any settings, place the Back outside surface down and against the fence stop and cut the bevel.

# Classical Jewelry Box

- (6) Save the remainder of the Box board for setting up the table saw to cut the splines.
- c) Cut grooves for the splines:
- Install the flat top saw blade in the table saw.
  - Set the blade angle at  $45^\circ$ .
  - Set the blade height so that the lower side of the blade is  $11/32''$  above the table.
  - Position the rip fence so that it is  $3/4''$  from the top edge of the blade with the fence in the upright position.



- v) **CAUTION! Slide the miter fence to the left as needed to ensure that it will not contact the saw blade.**
- Use the beveled offcut from making the Box sides to verify the setup.
  - Holding the stock outside face up and against the rip fence, use the sliding table to cut a groove in the face of the  $45^\circ$  bevel.
  - Measure the depth of the groove.
  - If the depth of the groove is less than  $3/8''$ , raise the blade slightly and re-cut the groove.
  - Proceed to the next step if the groove is positioned correctly (per the drawing). If not,
  - Repeat until a spline groove has been cut in all eight miter faces
- d) Cut the splines:
- In order for the splines to have good strength, their grain must run perpendicular to the face of the mitered bevel. They must also fit snug, but not tight in the spline grooves.
  - Resaw the off-cut from the side board to  $3/16''$  thick.
  - Sand the board to fit snugly in the spline grooves ( $\sim 1/8''$ ).
  - Position the ends of a front and side together and measure the length of the groove for the spline;
  - Use the radial arm saw and a fence stop to cut a test spline  $1/32''$  shorter than the length of the spline groove.
  - Smooth the edges of the spline using a 120 grit sanding block.
  - Test the fit of the spline in the groove.
  - Reposition the fence stop as needed until a good fit is obtained.

# Classical Jewelry Box

- ix) Cut the remainder of the splines needed.
- e) Cut the groove in the front, back and sides for the bottom:
  - i) Install a minimum ½” thick sacrificial fence on the table saw rip fence using double sided tape.
  - ii) Install a ¼” wide dado blade set in the table saw.
  - iii) Lower the blade below the table top.
  - iv) Set the rip fence so that 1/16” of the sacrificial fence is over the blade.
  - v) Raise the blades and cut an arc into the sacrificial fence board about 3/8” high.
  - vi) Set the blade height to 3/16”.
  - vii) Position the fence so that the distance from the fence to the outside edge of the dado set is the same as the thickness of the plywood bottom
  - viii) Cut a groove in the bottom inside corner of each side by passing the side over the blade with the inside face against the saw table and the bottom edge against the saw fence.
- f) Cut the bottom for the Box:
  - i) Measure the length of the groove in the front board.
  - ii) Set the sliding table stop at 1/16” less than this measurement.
  - iii) Cross cut a piece of ¼” hardwood plywood to this length.
  - iv) Measure the length of the groove in a side.
  - v) Set the rip fence at 1/16” less than this measurement.
  - vi) Rip the ¼” plywood to this width.
  - vii) Use a 120 grit sanding block to smooth the edges of the bottom.
  - viii) Verify that the ¼” plywood fits in the groove cut for the bottom.
- g) Glue the Box together:
  - i) I prefer to use band clamps to assemble boxes with miters.
  - ii) Using two band clamps, dry fit the sides, splines and bottom together to ensure that everything fits together properly.
    - (1) Make adjustments as necessary.
  - iii) Have a wet rag, water pot and tooth brush handy.
  - iv) Apply a thin film of glue to all bevels, and splines and the bottom groove.
  - h) Assemble the Box and position and tighten the band clamps. Use F style clamps to hold the bottom tight in the groove.
  - i) Check that the Box is square.
  - j) Allow the glue to dry for at least two hours before removing the clamps and be gentle with the Box for at least 24 hours.
- 2) Make the Molding:
  - a) **NOTICE! When cutting miters, the workpiece tends to move away from the blade during the cut, resulting in an angle greater than desired. The angle actually cut is not reproducible. To overcome this, either hold the workpiece very tight against the fence, or clamp it to the fence.**
  - b) Install a 10” ATB saw blade in the table saw.
  - c) You will need two scrap boards at least 16” long and 3” wide. Make them now.
  - d) Cut Molding stock to ~ 72” long x 3-1/2” wide.
  - e) Joint one face and edge.
  - f) Plane to 11/16” (0.06875) thick.
  - g) Use the wide belt sander with a 120 grit belt to bring the final thickness to 21/32” (0.65625”) thick.
  - h) Rip the boards to 2-7/8 ” + 1/32” (2-29/32”) wide.
  - i) Joint 1/32” off the sawn edge to yield a 2-7/8” wide board.

# Classical Jewelry Box

- j) Square the ends of the Molding board using the radial arm saw.
- k) Alignment of the sliding table fence:
  - (1) Set the fence at 45° and make a test cut on each test board.
  - (2) Bring the two mitered ends together and verify that they form a 90° angle when the mitered ends are brought together.
  - (3) If not, adjust the fence angle and make additional test cuts until a perfect 90° angle is obtained.
- l) Cut a 45° miter on both ends of the Molding board. These mitered ends will be used for the side boards.
- m) Draw a layout line that is 11-19/32 from the acute angle of the bevel on one board.
- n) Clamp a 45° mitered test board to the radial arm saw fence such that the layout line on the side board is aligned with the left-hand side of the blade.
- o) Using this setup, place the side board bevels against the beveled stop and cut the side boards of the Molding to a length of 11-19/32".
- p) Use the table saw to cut the front board for the Molding.
  - i) The Molding board already has a 45° miter on it.
  - ii) Measure over 18-7/32" from the acute angle of the miter and draw a layout line on the edge of the board.
  - iii) Position the Molding board to the left of the blade with the layout line over the left-hand scribe mark on the saw table.
  - iv) Cut the miter.
- q) Cut the mortises in the side pieces of the Molding:
  - i) Install a 5/16" mortising chisel and bit in the mortising machine. Ensure that the bit is square with the fence.
  - ii) Position the fence so that the distance from the fence to the inside edge of the chisel is 5/32".
  - iii) Adjust the depth stop to cut a mortise depth of 1-9/16".
  - iv) NOTICE! All mortises and tenons are to be cut with the top side of the side towards the fence.**
  - v) Mark the top sides of side and back pieces.
  - vi) Clamp the right-side piece to the fence.
  - vii) NOTICE! The lateral stops on the mortiser table will move if not tight or if hit hard. Therefore, approach the stops gently.**
  - viii) Adjust the lateral stops so that with the right-side piece to the right of the chisel, the mortise will start 1/2" from the end of the side and end 2-1/2" from the end.
  - ix) With the top side towards the fence, cut the mortise in the right-hand side.
  - x) Move the table to the left so that it is against the stop.
  - xi) With the left-side piece to the left of the chisel, position it so that the mortise starts 1/2" from the end and clamp it in place.
  - xii) Cut the mortise.
- r) Cut the tenons on the back piece:
  - i) Prepare a setup test board the same thickness as the Molding, about 1-3/4" wide and 12" long.
  - ii) Install the following dado blades on the table saw arbor in this order:
    - (1) 1/8" chipper
    - (2) Saw blade
    - (3) 5/16" spacer
    - (4) 0.040 magnetic shim
    - (5) Saw blade
    - (6) 1/8" chipper.

# Classical Jewelry Box

- (7) Set the blade height to 1-1/4".
  - (8) Cut a tenon on the end of the setup test board using the tenoning jig:
    - (a) Place the test board in the tenoning jig and adjust the lateral position so that the distance from the jig fence to the inside edge of the saw blade is 5/32".
    - (b) Cut a test tenon.
    - (c) Verify that the tenon fits snugly in the mortise. Add or remove magnetic shims between the 5/16" spacer and blade as necessary to obtain a snug fit.
    - (d) Once the proper fit has been obtained, adjust the jig fence position as needed to obtain a flush surface where the mortise and tenon join.
  - (9) Cut the tenons on both ends of the back piece.
  - (10) Cut the tenons to width:
    - (a) Install a 10" ATB blade in the table saw.
    - (b) Set the blade height to 1/8"
    - (c) Position the rip fence so that it touches the end of the tenon when the shoulder of the tenon is against the saw blade.
    - (d) Adjust the blade height to 17/32".
    - (e) Position the back piece on its outside edge and against the miter fence with the end of the tenon touching the rip fence.
    - (f) Make the cut.
    - (g) Flip the board end for end with the outside edge down and make a cut on the other end.
    - (h) Set the band saw fence to 17/32" from the outside edge of the blade.
    - (i) Place the piece on the saw table with the outside edge against the saw fence.
    - (j) Cut just deep enough to reach the cross cut made with the table saw.
    - (k) Flip the board end for end, with the outside edge still against the saw fence and repeat the cut.
  - (11) Assemble the tenons into the mortises and verify that everything fits together properly. Make adjustments as necessary.
- iii) Cut the biscuit mortises for the front and side pieces:
- (1) Position the front and side pieces in the proper orientation on the work bench and clamp them in place to the work bench. Ensure that all pieces are properly aligned.
  - (2) Draw a layout line 1-19/32" from the obtuse angle of the side piece along the 45° on both miters.
  - (3) Using a 45° bevel square, draw a line through these lines that is perpendicular to the bevel. This is the reference line for the biscuit jointer.
  - (4) **NOTICE!** When cutting biscuit mortises, the top surface of each board must be facing up. The boards must be clamped securely to the work bench. The depth setting must match the size of the biscuit to be used, the biscuit should be approximately centered vertically and the jointer must be held tight against the board with the index line on the jointer aligned with the layout line on the boards. Plate Joiners tend to slide to the right with respect to the workpiece when making a cut. This tendency is increased with a dull blade or when plunging very rapidly. Anti-slippage pins have been provided to reduce this tendency and are located on the front registration surface on either side of the blade opening slot.
  - (5) Clamp the pieces individually to the work bench:

# Classical Jewelry Box

- (a) Because the board is narrow, the anti-slippage pins will not engage. To prevent the jointer from moving to the right, clamp a board to the workbench that will prevent movement of the jointer to the right.
- (b) Cut the biscuit mortises on the front and sides.
- iv) Glue the assembly together:
  - (1) Dry assemble the Molding pieces using a band clamp. Use bar clamps if necessary, to get the front and side bevels to meet at a sharp point on the outside perimeter.
  - (2) Verify that everything fits properly.
  - (3) Verify that the assembly is flat.
  - (4) Remove the clamps and glue together using Type III or liquid hide glue.
  - (5) Verify that everything fits properly.
  - (6) Verify that the assembly is flat.
- v) Layout and drill the countersunk 3/16" shank holes in the top and bottom of the Molding per the drawings.
- vi) Use the shaper to cut the Molding profiles on the front and side edges of the Molding. The back side is untouched.
  - (1) Cut the lower profile using a 5/16" bead cutter (Lock-back head)
  - (2) Cut the upper profile, with the top surface on the table, using a 1" diameter cove cutter (63-008).

### 3) Make the Base:

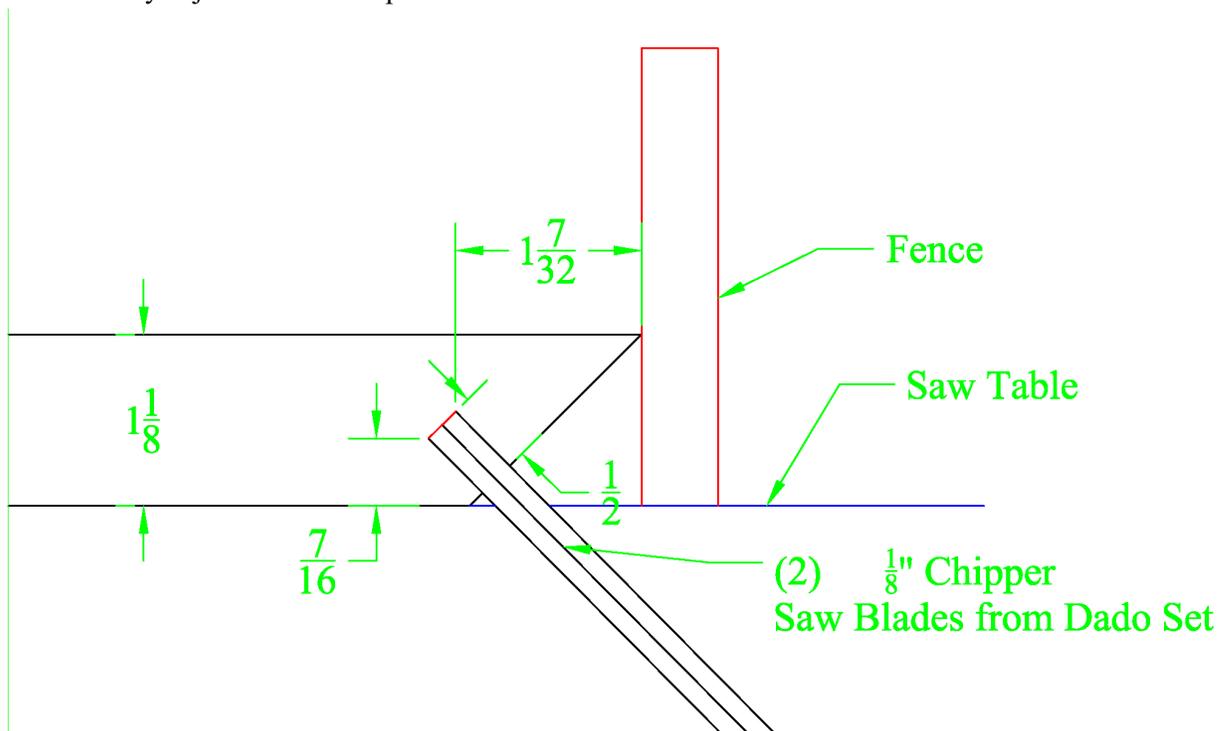
- a) Make the front and sides
  - i) Install the 40 T ATB saw blade.
  - ii) Cut 5/4 stock to ~ 48" long x 2-1/2" wide.
  - iii) Joint one face and edge.
  - iv) Plane to 1-3/32" (1.09375") thick.
  - v) This piece does not get sanded.
  - vi) Rip the boards to 2-5/16 (2.3125") wide.
  - vii) Joint 1/32" off the sawn edge to yield a 2-9/32" wide board.
- b) Cut the ogee profile on the Base:
  - i) **NOTICE! It is a good idea to setup all shaper cuts using scrap boards prior to cutting the actual; pieces to be used. During the setup process small changes can be made until the desired profile is achieved. In most cases, the actual pieces can be cut to full profile in one pass.**
  - ii) Install the Base ogee profile shaper cutter on the shaper.
  - iii) Position it vertically so that the top of the upper arc is 1-7/16" above the shaper table.
  - iv) Position the fence so that about 1/8" of material will be removed in the first pass.
  - v) Position the power feeder so that the wheels are horizontal and set to hold the board tight against the fence and table.
  - vi) Make the first pass cut.
  - vii) Draw the fence back a little at a time until the full profile is obtained.
  - viii) Layout the front and sides of the Base board so that the grain wraps around the box. That is: left-side, front and right-side. Make the marks on the bottom edge of these boards.
  - ix) Adjust the saw blade to 45°.
  - x) **CAUTION! Slide the miter fence to the left as needed to ensure that it will not contact the saw blade.**

# Classical Jewelry Box

- xi) Clamp the sacrificial fence to the sliding table fence such that the 45° kerf is aligned with the saw blade.
- xii) **NOTICE! All bevels will be cut first and then the sides will be cut to initial and final length using the radial arm saw.**
  - (1) Cut the Left-Side:
    - (a) With the bottom edge of the Base board against the sliding table fence, the inside face against the saw table and the board positioned to the right of the blade, cut a 45° bevel on the left end of the board.
    - (b) Place the board on the table of the radial arm saw with the inside face against the saw table.
    - (c) Set the fence stop at 11-11/16".
    - (d) Cut the side to initial length.
  - (2) Cut the Front:
    - (a) Turn the Base board outside face up, bottom edge towards the fence and to the right of the blade. Taking off no more material than necessary, trim a 45° bevel on the left end.
    - (b) Using a 24" combination square, make a mark on the top face 18-7/32" to the right of the acute angle of the bevel.
    - (c) Use a square to draw a layout line across the Base board that passes through this mark.
    - (d) Flip the Base board over so the outside face is against the saw table and the top edge is towards the fence.
    - (e) Use a 45° bevel square to draw a line from the layout line to the inside face of the Base board.
    - (f) Use a square to extend this layout line across the inside face of the board
    - (g) Position the Base board with the layout line against the left-hand side of the saw kerf in the fence.
    - (h) Cross cut a 45° bevel on the end of the Base board. Mark this board as the Front of the box.
  - (3) Cut the Right Side:
    - (a) Position the Base board to the left of the saw blade with the outside face against the saw table and the top edge is towards the fence.
    - (b) Cutting off no more than is necessary, cut the bevel.
  - (4) Cut the sides to final length:
    - (a) Place the side board on the table of the radial arm saw with the inside face against the saw table.
    - (b) Set the fence stop at 11-19/32".
    - (c) Cut the sides to final length.
- c) Cut a rabbet at the rear of the sides:
  - i) Install a minimum 1/2" thick sacrificial fence on the table saw rip fence using double sided tape.
  - ii) Install a 3/4" wide dado blade set in the table saw.
  - iii) Lower the blade below the table top.
  - iv) Set the rip fence so that 1/16" of the sacrificial fence is over the blade.
  - v) Raise the blades and cut an arc into the sacrificial fence board about 3/4" high.
  - vi) Set the blade height to 5/8".
  - vii) Position the fence so that the distance from the fence to the outside edge of the dado set is 3/4"
  - viii) Place a side on the saw table with the inside surface on the saw table, an edge against the sliding table fence and the un-beveled end against the rip saw fence.
  - ix) Cut the rabbet.

# Classical Jewelry Box

- d) Cut grooves for the splines:
- Install the two  $\frac{1}{8}$ " thick chippers from the dado set in the table saw.
  - Set the blade angle at  $45^\circ$ .
  - Set the blade height so that the lower side of the blade is  $\frac{7}{16}$ " above the table.
  - CAUTION! Slide the miter fence to the left as needed to ensure that it will not contact the saw blade.**
  - Position the rip fence so that it is  $1\frac{7}{32}$ " from the top edge of the blade with the fence in the upright position.
  - Use the beveled offcut from making the Base to verify the setup.
  - Holding the stock outside face up and against the rip fence, use the sliding table to cut a groove in the face of the  $45^\circ$  bevel.
  - Measure the depth of the groove.
  - If the depth of the groove is less than  $\frac{1}{2}$ ", raise the blade slightly and re-cut the groove.
  - Proceed to the next step if the groove is positioned correctly (per the drawing). If not, Make the necessary adjustments and repeat the test.



- With the inside face against the table and the acute angle of the bevel against the fence, cut the spline grooves on each of the four bevels.
- e) Rip the Base boards to final width:
- Set the table saw blade angle to  $90^\circ$
  - Set the rip fence to  $1\frac{7}{16} + \frac{1}{32}$ " ( $1\frac{15}{32}$ ").
  - With the bottom of the Base board against the fence and the inside face on the saw table, rip the Base boards,
  - Joint  $\frac{1}{32}$ " off of the sawn edge. This edge should align with the top of the top arch.
- f) Cut the splines:
- In order for the splines to have good strength, their grain must run perpendicular to the face of the mitered bevel. They must also fit snug, but not tight in the spline grooves.

# Classical Jewelry Box

- ii) Resaw the off-cut from the Base board to 5/16" thick.
  - iii) Sand the board to fit snugly in the spline grooves (~1/4").
  - iv) Position the ends of a front and side together and measure the length of the groove for the spline;
  - v) Use the radial arm saw and a fence stop to cut a test spline 1/32" shorter than the length of the spline groove.
  - vi) Smooth the edges of the spline using a 120 grit sanding block.
  - vii) Test the fit of the spline in the groove.
  - viii) Reposition the fence stop as needed until a good fit is obtained.
  - ix) Cut the remainder of the splines needed.
- g) Make the Back board:
- i) Joint, plane and sand a board to 3/4" thick.
  - ii) Rip the board to 1-7/16" wide.
  - iii) Dry assemble the sides and front of the Base, including the splines.
  - iv) Ensure that the bevels are tightly closed.
  - v) Measure the distance between the rabbet grooves (should be 17-1/4") and cut the back board to that length.
  - vi) Drill two countersunk 3/16" shank holes 5/16" in each end of the board.
- h) Cut the scroll work on the front board.
- i) Install a 3/16" blade in the band saw. The scroll work has radii that are too tight to cut using the band saw. These must be cut by nibbling up close to the line.
  - ii) **NOTICE! Aligning a paper pattern on a board can be difficult. The instruction on the can of spray adhesive state that you are to apply the adhesive to both parts and let the adhesive dry for X seconds or minutes before attaching the pattern. This will yield a strong bond, but once the pattern touches the board, it cannot be repositioned. My method is to apply spray to both the pattern and the board and to immediately place the pattern on the board. You will then have a few seconds to position the pattern so that it is aligned properly. To remove a pattern, heat it using the heat gun, which causes the adhesive to soften.**
  - iii) Put a layout line on the bottom edge of the front board at the center of the board.
  - iv) Attach a full-size print of the scroll work to the back of the front board using spray adhesive. Ensure that it is lined up properly with the base line of the drawing aligned with the base of the front board. It also must be centered.
  - v) Remove the rip fence from the band saw. Install a zero-clearance top on the top of the saw table that extends at least 20" to the front, rear and side of the saw.
  - vi) Place the board on the table, inside surface up, and cut out the scroll pattern.
  - vii) The cut surfaces will need to be faired using files and the spindle sander.
- i) Assemble the Base:
- i) Dry clamp all pieces together using a band clamp. Ensure that all bevels close up tight, the assemble is square and flat. Make adjustments if necessary.
  - ii) Apply Type III or liquid hide glue to all bevels, splines, and rabbets.
  - iii) Clamp all pieces together using a band clamp. Ensure that all bevels close up tight, the assemble is square and flat. Make adjustments if necessary. Do not use excessive clamping pressure. The front will bow.
  - iv) Install two #8 x 1-1/2" screws through the back board into the sides.
- 4) Make the Top:
- a) If necessary, glue up boards to make the Top.

# Classical Jewelry Box

- i) Joint and plane the boards, taking off not more material than necessary.
  - ii) Draw a carpenter's triangle on the top surface with the boards oriented as desired.
  - iii) Joint the mating edges of the boards:
    - (1) If the edge is towards the base of the triangle, joint the edge with the triangle towards the jointer fence.
    - (2) If the edge is towards the top of the triangle, joint the edge with the triangle towards you.
  - iv) Edge glue the boards together using bar clamps on both the top and bottom of the assembly.
  - v) Use batons across the joints if needed to keep the surface flat.
  - vi) Let the glue dry for at least 24 hours.
  - b) Plane the Top to 11/32" thick
  - c) Sand the Top with 120 – 150 grit belt to 5/8" thick
  - d) Joint one edge.
  - e) Rip the unjoined edge to 12". Mark this edge as the front of the Top.
  - f) Cross cut the Top to 18-11/32" long.
  - g) Cut the molding profile on the Top:
  - h) Install a 3/8" bead cutter in the shaper.
  - i) Adjust the vertical position so that the top of the cutter cove is just a hair above the top surface of the Top.
  - j) Adjust the depth of cut so that infeed fence is 1/16" past the inside of the cove center of the cutter.
  - k) Adjust the outfeed fence so that it supports the board after the profile is cut.
  - l) Shape the ends of the Top.
  - m) Shape the front side of the Top.
  - n) Install a 1" cove cutter in the shaper.
  - o) Adjust the vertical position of the cutter so that the top of the cutter is even with the bottom of the bead above.
  - p) Adjust the fence so that the front edge of the cutter is 11/16" in front of the fence.
  - q) Shape the ends of the Top.
  - r) Shape the front of the Top.
  - s) With the front of the Top against the table saw rip fence, rip the Top to 11-3/8" + 1/32" (11-13/32") wide.
  - t) Joint 1/32" off the just sawn edge.
- 5) Cut the mortises in the Box and Top for the hinges using the router hinge template.
- 6) Attach the Base to the Molding using #8 x 1-1/2" FH screws
- 7) Attach the Box to the Molding using #8 x 1-1/2" screws.
- 8) Make the Base Upper Molding:
- a) Joint, plane and sand a board to 5/16" thick and 48" long
  - b) Rip the board to at least 3" wide (being wider is fine).
  - c) Install a MT-05-045 cutter in the shaper.
  - d) Adjust the vertical height of the cutter so that the top arc of the cutter is 5/16" above the table.
  - e) Adjust the depth of cut so that the cutter projects 7/16" from the front of the fence.
  - f) Adjust the outfeed fence so that it supports the board after it passes the cutter.
  - g) Cut the molding profile.
  - h) Install an ATB blade in the Table Saw.
  - i) Set the rip fence on the table saw to 1/2".
  - j) Rip the molding from the board. **CAUTION! Be sure to use a gripper.**

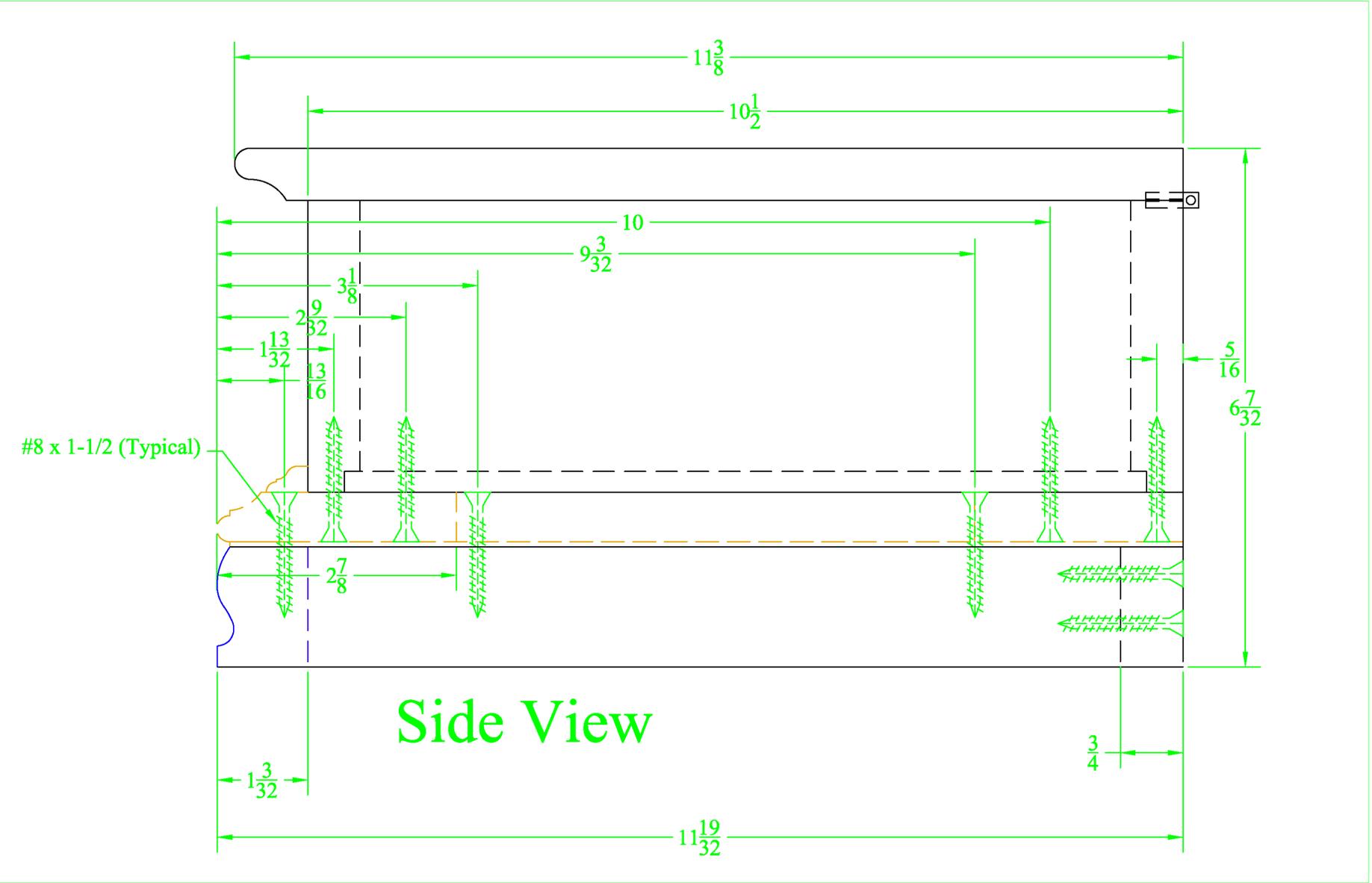
# Classical Jewelry Box

- k) Adjust the blade to a 45° angle.
  - l) Install the auxiliary fence on the sliding table fence with the kerf aligned with the blade.
  - m) **CAUTION! Slide the miter fence to the left as needed to ensure that it will not contact the saw blade.**
  - n) Cut the Base Upper Molding to length to fit the Box using the method used to cut the Base pieces to length. However, do not take measurements. Mark all cut layout lines by holding the Base Upper Molding up against the box and making a mark with a .5mm pencil. Use the kerf in the auxiliary fence as a guide as to where the cut will be made.
  - o) Once the Upper Base Molding has been cut to length such that the miters joint tightly, secure it with glue and pins from a pin nailer. After finishing, the pin holes can be filled with wax from a crayon.
- 9) The Classical Jewelry Box is now ready for finishing.
- 10) After finishing, install the hinges:
- a) **NOTICE! Brass screws are weak and will break if over stressed. Either drill a pilot hole a little larger than usual of first drive steel screw to cut the threads. It is best to test your pilot hole size in a piece of scrap prior to trying to drive the brass screws into the hinges.**
  - b) **Notice! The Brusso hinges come with (8) #4 x 3/4" Phillips flat head brass screws. These work fine for attaching the hinge to the Box. However, they are too long to be used for attaching the hinge to the 5/8" thick Top. #4 x 1/2" screws are need for this. Also, be sure that the Vix bit is adjusted such that it will not drill a hole deeper than 1/2".**
  - c) Use a Vix bit to drill pilot holes for the hinge screws.
  - d) Wax the screws liberally and drive them into the hinge.

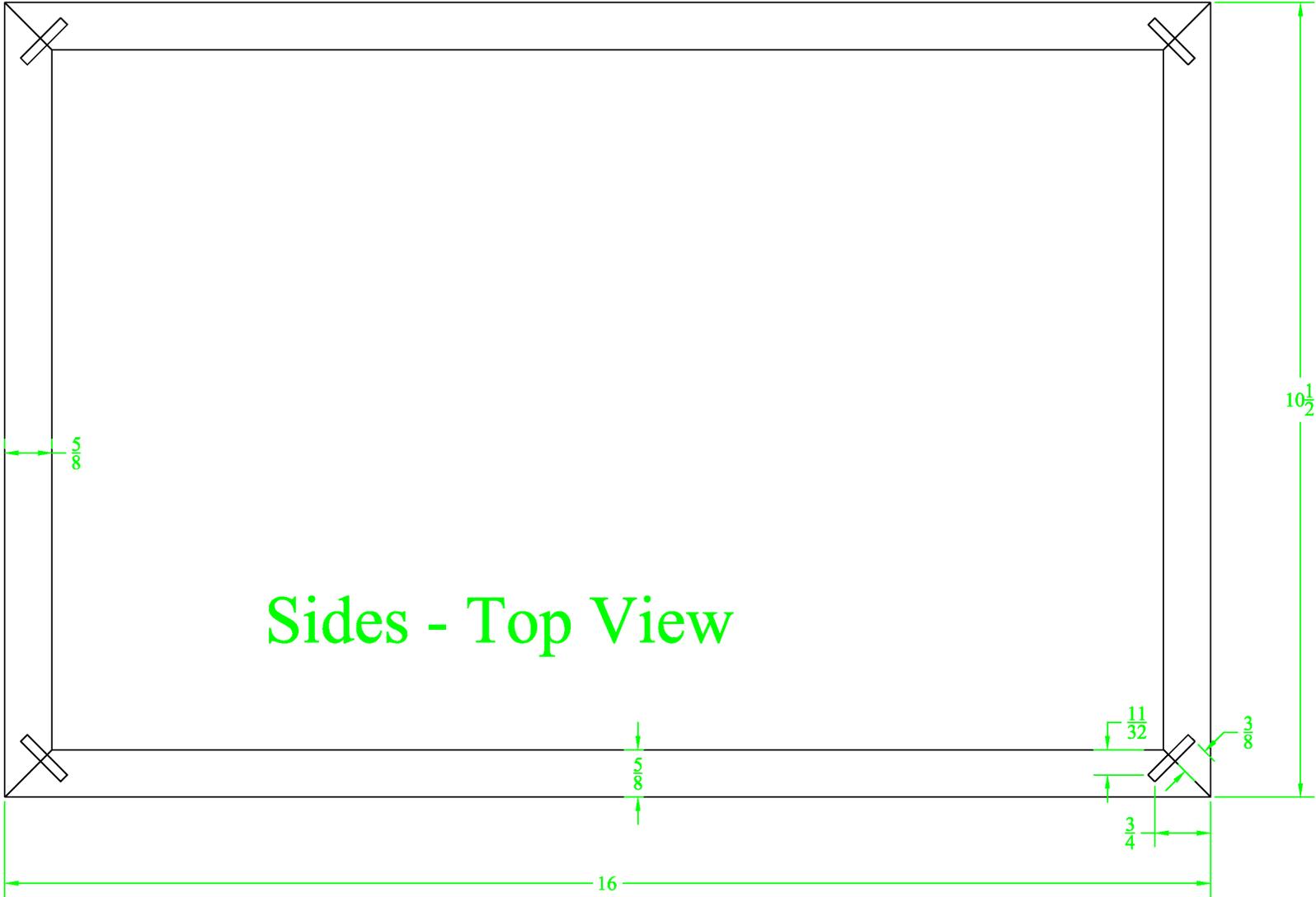
**Enjoy!**



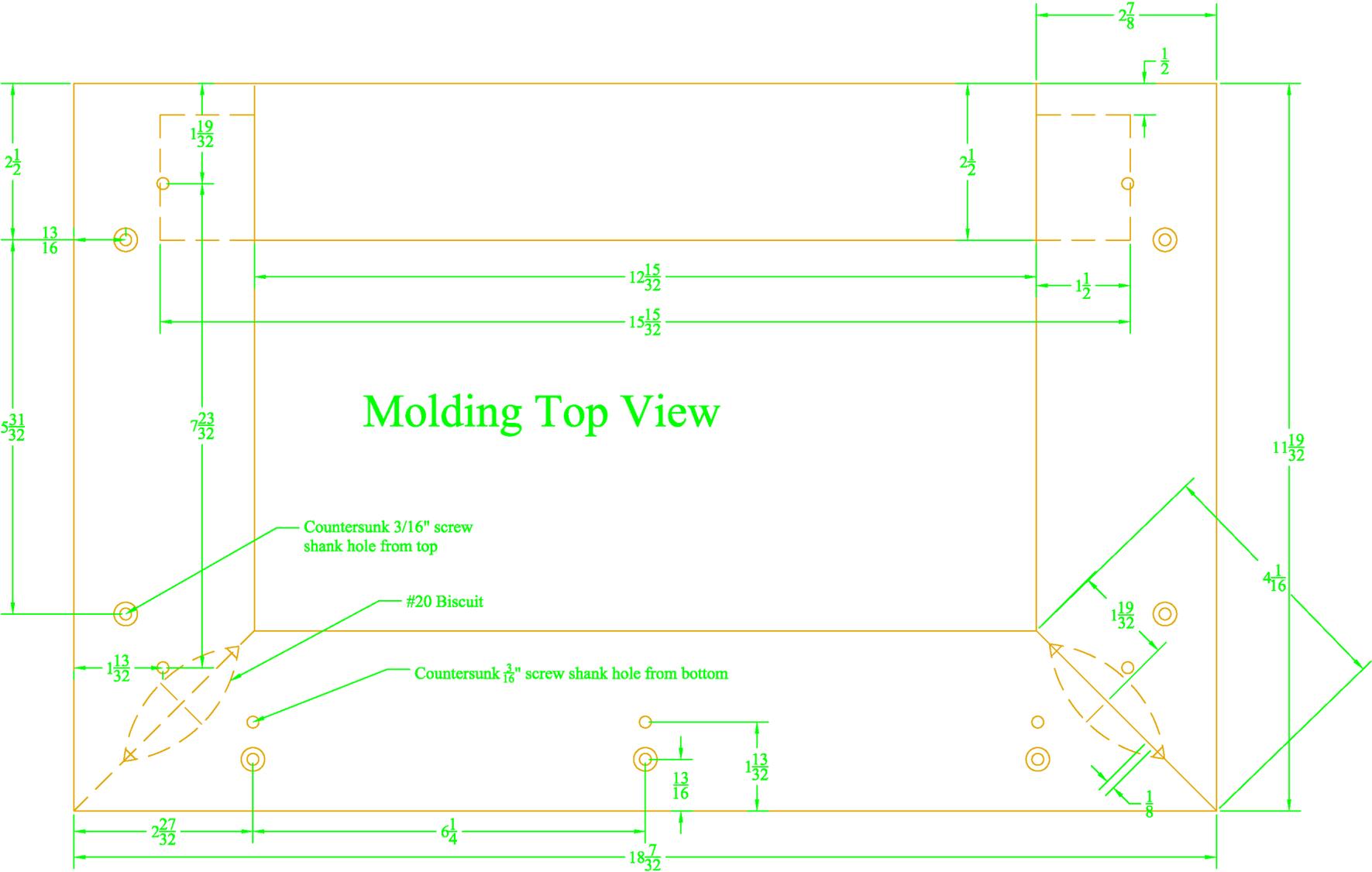
# Classical Jewelry Box



# Classical Jewelry Box



# Classical Jewelry Box



# Classical Jewelry Box

