

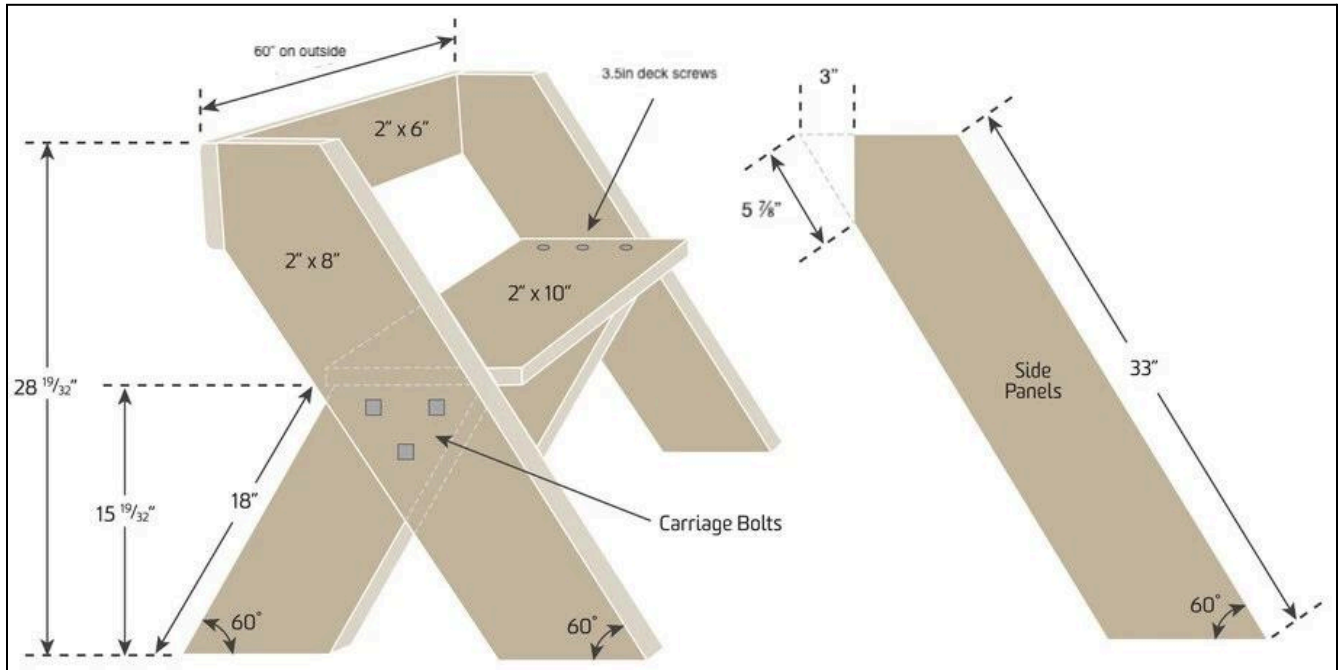
How RVA Bench Collective Builds Our Benches

Tools

- Measuring tape
- Speed square
- Carpenter pencil or permanent marker
- At least 2 quick-grip / bar clamps
- Level
- 3/8 drill bit
- a bit that matches your deck screws (T20 or T25 recommended)
- Drill/driver(s)
 - At least one drill that can take your 3/8 drill bit
 - OPTIONAL: An additional driver that can take your screw-driver bit
- Adjustable wrench OR a ratchet with a socket that fits the nuts you're using
- Circular saw OR miter saw

Materials (makes 2 benches)

- Lumber:
 - (2) 2x8x10' for the legs
 - (1) 2x10x10' for the seats
 - (1) 2x6x10' for the backs
- Hardware:
 - (24) 3.5-inch deck screws
 - (12) 3/8in, 3.5in long carriage bolts
 - (12) washers for 3/8in bolts
 - (12) nuts for 3/8in bolts



Plans altered from the [Iowa DNR Site](#)

Steps for Building

Cut

1. Cut the 2x6 to two, 5 foot (60 inch) pieces to create bench backs
2. Cut the 2x10 to two, 57 inch pieces to create bench seats



Above: 2x6 at 60 inches above a 2x10 at 57 inches

3. Cut the short legs

1. Measure and mark a 60° angle at the end of your 2x8 (use the speed square to find the angle)
2. Measure 18" from the end, and mark another 60° angle in the same direction
3. Check that your angles are consistent by measuring the marks on the "far" side of the board: those marks should also be 18" between
4. Measure another 18" and mark another 60° angle, giving yourself a little extra room for the waste the saw creates
5. Cut your short legs
 1. With a miter saw, set the angle of the cut to 30° to match your marks
 2. With a circular saw, clamp your level to the board offset from your cut lines to serve as a guide
4. Cut the long legs
 1. Repeat the process you used for the short legs, this time measuring 33" between your markings



Above: A short leg and long leg, 18" and 33", cut at 60° angles with a miter saw

5. Cut off the corners
 1. Measure 3 inches from the top corner of the long leg and use the speed square to draw a line straight down
 2. Cut along that line to create a right angle where the bench back will be attached

OPTIONAL: At this point, we paint our cut-ends with primer to improve the waterproofing & longevity of our benches. If you're using treated wood, this step may not be necessary. Slightly delays next steps as you wait for paint to dry.

Drill + Bolt

1. Level the “feet” of one short and long leg using the straight wall of the miter saw, or a sidewalk or flat portion of ground. Use clamps to hold the legs together in this position



Above: A long leg with its corner cut sits on top of a short leg, both pushed against the back wall of our saw to level them. Not yet clamped.

2. Mark 3 spots for bolts at least one inch inside both boards
3. Using the 3/8 drill bit, drill 3 holes

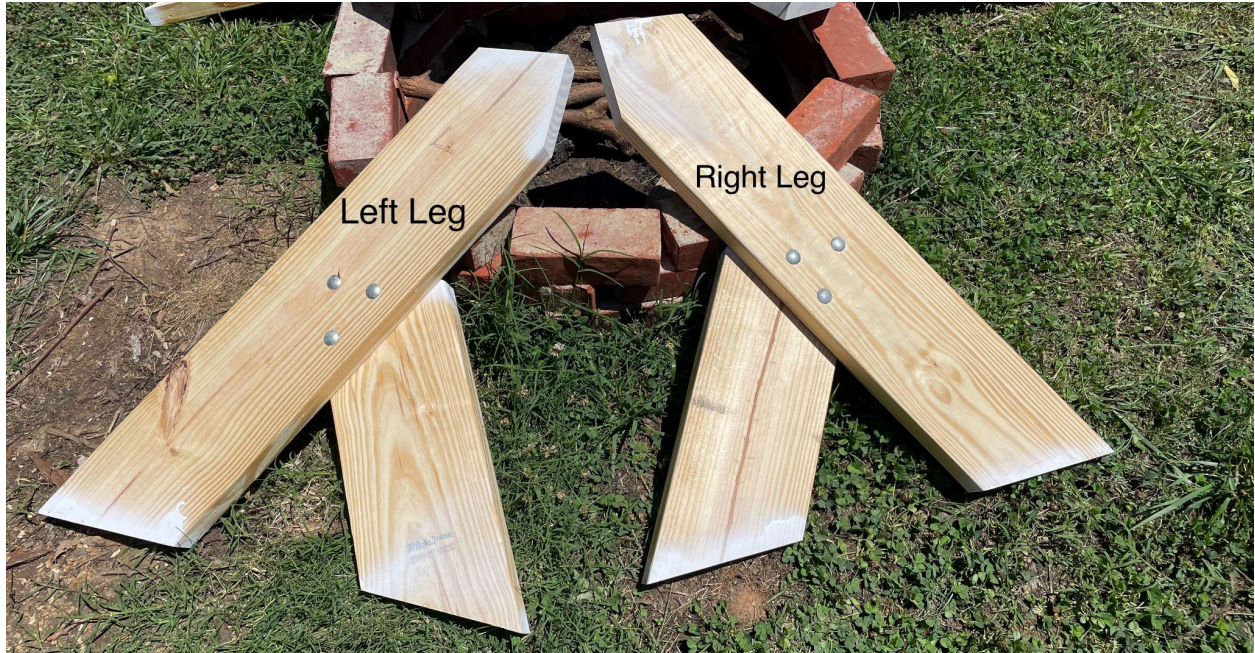


Above: short leg and long leg with holes drilled for bolts.

4. Put your 3/8 bolt through the holes FROM THE LONG-LEG SIDE, with a washer and nut on the other side
5. Tighten nuts using an adjustable wrench, ratchet wrench with socket that fits, or with same socket on a drill

Ensuring Right & Left Legs Are Correct

On each side of the bench, the short leg should be on the “inside”, facing the same direction as the cut corner of the long leg. Pictured below are right and left leg constructions.



Assemble + Screw

1. Place your bolted-together legs upright on a level surface about 5 feet apart
2. Lay the 2x10 seat section across the legs so that it meets cleanly with the upright sections
 1. If you have a group of people, one person per side is helpful to keep everything lined up. If you have just one or two people, leaning the legs against a structure, a chair, or similar will make it easier to keep everything up while assembling.
3. Sink 3 deck screws straight down through the seat into the short leg portion. Ensure that you are not too close to the edge or the screw may protrude through the bottom.
4. Repeat on the other side, screwing the seat to the legs
5. While one person holds the middle of the back piece, the other can “tack” it to the top of the long leg pieces with a single screw.
 1. If the board warps or bends away from lying flat against the back of the leg piece, you can use a corner you cut off + a wide clamp to pin the back flat before screwing in
6. Use 3 deck screws on each side of the back rest to hold it to the top of the long leg