A Custom Shooting Bench

Probably most shooters who want to sight in a rifle, check handloads in a handgun or pattern a shotgun will have to go to a public shooting range to find the proper facilities. And that isn't always easy.

The left side view of the shooting bench shows the placement of the 2x4 and 4x4 material used to construct the skeleton of the bench.

Other than established shooting ranges, places safe enough for shooting and sighting in a firearm may not have the best kind of rest or support that will assure precise sighting. Shooters fortunate enough to own a piece of land that provides safe shooting conditions (or who happen to have a friend or relative with the land) still need more than just the range and safe backstop. There needs to be a solid benchrest of adequate size and stability so the wobble is not an additional problem during the sighting-in process.

The right side view of the shooting bench shows the basic frame of the bench and the diagonal 2x4 that strengthens the bench.

Benchrests can come in any number of sizes and styles and be made of a wide variety of materials. My family is blessed to not only have a piece of land where sighting in a firearm is possible, but we also have an abundance of native materials on hand. That's the basis for my project of building a custom shooting bench.

When plans were being made to build a solid shooting bench, the cedar that was on hand was the natural choice for material. Obviously, other types of wood can be used, and if the bench is to be outside all the time, CCA-treated material would probably be the best choice. Other woods, if properly treated

This top view shows how the support 2x4s are positioned for the installation of the top.

with a sealer or good paint will last a long time too. Cedar is a long-lasting wood and when sealed with a clear lacquer will last indefinitely. Plus, it makes an attractive appearance. Appearance was not our goal; it was just a bonus.

In my opinion, there are four basic considerations in a project like this. First, the finished bench has to

Above left, if bolts are to be used to assemble the framework, be sure the exposed threads are positioned to the inside of the 4x4 posts. Right, for best appearance and to avoid accidental scraped legs, the bolt heads should be countersunk.

be solid. Trying for the absolute best accuracy from a firearm is enough of a challenge without having to fight the bench to keep it from wiggling and wobbling. In order to get that solidity, there has to be a fair amount of weight involved. A bench made of concrete would be the most solid but that would eliminate the other three considerations. Setting the legs of a heavy wood bench in concrete would also add to the solidity of the bench. If the bench might be moved at any time, however, having the legs set in concrete would prevent that.

The second consideration is size. A functional shooting bench needs to be large enough to comfortably accept the shooting rest, sandbags, spotting scope, chronograph, extra ammunition or whatever the shooter needs close at hand. At the same time, however, the bench should not be so big that in order to reach any of those items, you have to get off the seat and walk around to the other side of the bench.

Number three is cost. For a scrounger, this is the best part. If you go around just about any construction site, you can pick up enough material to build a good bench. A local contractor recently told me that they have a dumpster for their cast-offs, and anything in it is free for the taking. On one trip, I loaded about half a pickup bed with nothing but two-by material and good sized pieces of plywood.

Last, the bench should not require an architectural degree or a workshop full of expensive power tools. The bench in our project could have been built with nothing more than a handsaw, a hammer and some nails – not that I didn't use the power tools I had on hand, mind you. I did. I wanted to use bolts and screws instead of nails, I had the tools already, and I'm lazy.

The actual construction of this custom shooting bench began by collecting the material. I had 4x4, 2x4 and 2x6 (inches) cedar on hand already, so that part was easy. Next was to draw up the bench plans with measurements needed for each piece. I'm not an architect, but I'm a pretty good plagiarist. There have been a number of shooting benches shown in various gun magazines over the years, so by looking closely at

The left view of the bench illustrates the shorter diagonal brace, seat arrangement and appearance of the finished bench. Below, Ron is able to move the 160-pound bench around wherever he needs it. Although designed to remain outside, with wheels mounted on the front, the bench can be moved inside the covered shed on the range for shooting during inclement weather.

those photos, you can get a fair idea of how they are built. Or, go to a public range and look at the benches there. Adapt them to your own style – that's what I did.

As with any construction project, the foundation is the most important part. For this bench, I used 4x4 posts, seven of them. Each was a full 4 inches after being planed to smooth surfaces. If you buy CCA material, it probably will be a little smaller. Or, if you use two 2x4s nailed together it will be about 3x3½. Dimensions are not critical with any of these materials – just choose what you have on hand or access to at the best price.

Three of the 4x4s were laid out parallel to each other with an outside measurement of 42 inches. Two 2x4s of that length were then bolted (or nailed, lag bolts, etc.) to them so when that side is turned around those 2x4s are on the inside. Make sure they are square. This can be done with the use of a carpenter's square or by using a tape measure. These two 2x4s are attached to the 4x4s so one is at the very top, level with the top of the 4x4s and the top of the other one is 15 inches below the bottom of the top 2x4. After these are attached (by the way, if bolts are used, make sure the exposed threads will be on the inside of the legs when the bench is upright), turn the assembly over and attach two more 2x4s on the opposite sides of the first two 2x4s. These boards serve as support for the top and also the bottom shelf and seat.

Next, add a 2x4 diagonally from the bottom of the top 2x4 to the top of the bottom 2x4. This is an important board due to the extra strength it gives to the bench.

The above assembly is the right side of the bench. For the left side, lay out two 4x4s that are 32 inches long and one 4x4 that is 15 inches long (for the seat support). The space between the two longer 4x4s is 24 inches, outside to outside. At the top of those two posts, a 2x4x23 is bolted and a 2x4x42 board is bolted 15 inches from the bottom of the top 2x4 and even with the top of the 15-inch 4x4. This is then turned over to the other side and two more 2x4s of the same lengths and a short diagonal 2x4 are bolted to the 4x4s as was done on the right side.

An extra pair of hands would be helpful for the next step, but I managed without them, so I'm sure you can too. With the two sides upright, front and rear braces are attached (I used 3-inch screws) to the 4x4s. Two 2x4x32-inch braces are at the front of the bench, one at the very top and the second even with the 15-inch sides. The ends of these front braces extend out past the 4x4s enough to be even with the 2x4 side braces.

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After these boards are in place, the bench skeleton is almost complete. A 2x4x32-inch board is bolted to the rear of the bench, even with the top of the 15-inch 4x4 and with the right side brace/diagonal. An 18-inch 2x4 is bolted to the top of the rear middle and right 4x4s.

The top, while not the most important part of the bench as far as stability is concerned, plays a vital role in the project. The simplest type of material – and the easiest to work with – is plywood. If that is your choice, ¾-inch marine plywood would be the best choice. Using plywood will also eliminate a few of the following steps I used.

My hesitation about plywood stems mainly from what I mentioned earlier – I'm lazy. Once this bench is done, I don't want to have to go back in a year or two (or even longer; it's still the same idea) and replace that top. Plywood is great material, but it does deteriorate at a faster rate than solid woods. That factor, plus the fact that I had all that 2x4 and 2x6 cedar on hand and that it would look a whole lot better when finished, made my choice pretty easy. This did mean, though, that I would need additional bracing for the top since it would be made from multiple pieces.

For this bracing, I added a 2x4x18-inch cross support between the two middle 4x4s. Between that middle and the front brace, more cross-brace 2x4s were installed in an X pattern. A single 2x4 was installed at an angle between the middle and rear 2x4s. Since the cut-out for the shooter was to be made in this area, only one support brace was needed here. I hope the photos show these steps clearly, for they are a vital part of the top support.

With all the frame work done, the only thing left is mounting the top to the skeleton and installing the seat. These boards were all screwed in place with the screwheads countersunk to be slightly below flush with the board surfaces. A 2-inch overhang was left all the way around on the top, a router was used to take the sharp edges off the outer boards, an orbital sander was used (briefly, after all, this wasn't a dining room table) to smooth any rough areas and three coats of urethane covered all wood surfaces, including legs, braces and underneath surfaces.

The seat was simply two 2x6x26 and one 2x4x26 boards screwed to the lower left and right side 2x4s. They, too, were screwed in place and the edges routed prior to sanding and brushing with urethane.

These lower 2x4s also gave support for a storage shelf. I debated about using cedar for this shelf but decided that using anything else at this point would be an eyesore to the finished project. I had a fair amount of 2x4 cedar still on hand and used that. Maybe too much of a good thing, but it only cost a little time and the end result was worth it.

The time involved in this project was spread out over a couple of months, working in short stretches. I'll 'fess up that I proba-

bly spent almost as much time in figuring out the design and drawing up the dimensions as I actually did in the construction – gives you an idea of how unarchitectural I am, doesn't it? Really, it gives an idea of how easy it is to build a bench like this.

Did I accomplish what I set out to do? Absolutely! I'm fortunate enough to have a developed shooting/training range with a range house (shed) on our property and can be under cover for a big part of my shooting if I desire, but for most of my shooting, this bench sits out in the sun – just like most benches at public shooting ranges. At 160 pounds, the bench is rock solid and takes away any excuses I might have for erratic grouping. Yet even with its stability, I can, with the help of Matt, my grandson shooting buddy (or, if necessary, with a few grunts by myself), move it back into the covered shed if I want to shoot in bad weather.

A side note here: After three solo moves of this bench, I did some cogitatin' and decided there had to be a better way. I ended up installing two surplus front wheels off a worn out riding lawn mower on an axle through the two front 4x4s. The wheels only extend 2 inches below the bottom of the posts but raise it enough that I can lift the rear of the bench and move it anywhere on our range I want without herniating myself. The bench is still absolutely solid and the slight elevation is actually an asset when shooting from a rest and sandbags.

A project like this is ideally suited for an off-season time. It can be done in a basement, garage or just out in the yard if necessary. Once finished, getting it to where you want it is best accomplished with the help of a friend or two and a small trailer or pickup. If you don't have either, you can count on a shooting buddy donating his truck and muscle in exchange for a chance to use it come sighting-in time. Sounds like a fair trade to me!