A Short Study of Benchrest Benches

There is a need for a few good benchrest benches
We have seen questions arise in benchrest discussions about how to build a good benchrest bench. We have seen many opinions from different people describing what their club has or what they have seen. Some of these ideas are very good and others are not as good. We can shoot off of a folding card table but there are better designed tables for benchrest.

Considering the prices that we pay for good benchrests and bags, we should at least have sturdy benches, with enough room for our stuff, to shoot off of. I have shot off of benches that you have to hold steady along with your rifle and rest. There is no reason why we cannot build benches that are steady in anything short of an earthquake. Every club has skilled people who will gladly donate their time supervising and building some good benches. With donated labor, we can build several good benches for the price of a good benchrest and bags set.

You may ask, “Who is this guy and what does he know about how to build benchrest benches”? Allow me to answer and get me out of the way. I am a homebuilder and a builder of things. I have built houses and cabinets; saw horses and work tables and benchrest benches. My company builds built-in ironing boards and distributes them across the United States under the name of “Hide-A-Board”. Besides shooting, designing and building sturdy things is what I do.

Some of our best ideas come from the ideas of others. We are great copy cats and there is nothing wrong with that if the idea producer doesn’t mind. Let’s face it, the wheel has been invented. What if we can make it roll better for our purposes?

I hope to show several good ideas of benches of different materials and shapes to fit different needs. If you want to use any of these ideas at your club, please do. I believe that you can even improve on these ideas. I hope that you will share your ideas with others. Be under no illusion that there are not other great ideas for benches that we have not covered. I am sure that there are good ideas that I have not even thought of.

Standards and Materials

It would be nice if there were standards concerning benchrest benches, but there are not. A bench height of 32” to 34” seems to be satisfactory for most people. With adjustable stools, we shooters can adapt. Benches should be placed at least 5’ on center. The top needs to have ample room to hold a rifle on a rest, ammunition, cleaning supplies, and whatever else we might bring. It doesn’t hurt to have extra room on a shooting bench.
One thing to consider on the range is the needs of handicapped shooters. One or two benches, if not all, should be wheelchair accessible.

Benches tend to say around for a long time. A good bench will out last a good canopy. It is well worth the effort to build them right. It is good to keep in mind that shooters that haven’t been born yet will use what we build now. A funny thing about quality and cost, you will remember the quality long after you forget the cost.

A good wood bench with good paint every few years will last up to 20 years or more. There are houses with wood siding that have lasted for decades, some from colonial days. If you choose to use wood for the top of your bench it will last longer if you place the boards on the frame so that the bark side of the tree is up. It will shed water better.

There are exterior medium density fiberboard (MDF) products on the market that are designed for out side trim and moldings on buildings as well as exterior doors. This could make very good tops. This product blends itself to make rounded corners and molded edges with a router. Of course, this product just like wood, is no better than the coat of paint on it.

For long lasting use in an outdoor environment masonry or concrete is unbeatable. It is not effected by rain or sun and will outlast us. Of course we won’t need them that long, but a good concrete base might be around for the next four hundred years. A clear exterior penetrating sealer is a nice touch to smooth the concrete for elbows while keeping moisture from rain and snow out of the concrete.

**Basic Top Shapes**

Most benchrest benches are made for both left and right handed shooters and they come in come in basic shapes. Every shooter seems to have their own ideas on how the top of their perfect bench should be shaped. Most bench tops fall into one of three basic shapes.

The “T” shaped bench is the most common bench rest bench on rifle ranges today. The two other shapes around are the “horseshoe” and the “trapezoidal”. All of these have their following. World records can be set on all three.
Historic four-legged wood bench

The first shooting bench that I ever used was made out of lumber. It was at our old San Angelo Gun Club location. In 1956 the NBRSA held their third National Championship Shoot here on these benches. They were not like you see today, yet they were very sturdy and had a lot of room on them for a spotting scope, which was very handy for sighting in a hunting rifle with a 4 or 6 power scope at 100 or 200 yards and they were moveable. These benches were used for at least 25 years until we moved to a new location. I liked these old benches. A rare coat of green paint is all the maintenance I can remember. Although this design is an old style, I feel that it was and is very satisfactory.

These benches are fairly simple to build for people who work with lumber. Ours were constructed with #1 framing lumber. The side 2 x 6s were bolted to the 4 x 4s with 1/2” galvanized carriage bolts and the rest of the 2 x 6s were nailed with galvanized 16 penny nails.

With four legs sitting on an unleveled surface, sometimes shimming was required. The weight of the shooter helped stabilize the bench. Since the seat height was fixed and built into the bench, short people used boat cushions or crossed one leg under them to gain extra height. I never heard anyone complain.

One neat thing about these benches worth considering with any gun club bench project, they had an engraved aluminum plate on the top of each with the name of the individual, family, or company who paid for the bench and donated it to the club. That is an inexpensive way for a club to recover the cost of new benches.

There are more inherently stable designs available with three legs but this is a very comfortable and roomy bench that is quite satisfactory if properly built. I can’t help but think that this bench with a concrete top and concrete or large pipe legs might be the ultimate.
**Fixed benches**

This category covers all benches whose legs or bases are anchored to the ground or to a concrete slab and are therefore, unmovable. These are very steady benches. Make sure that you have your benches where you want them as they don’t move easily.

Three 3 or 4” pipe legs set about 16” into concrete with a concrete top have proven to make for a very steady bench. For even greater stiffness, fill the legs with concrete before you place the top.

The benches at my gun club are very durable and sturdy. The pipe legs are welded to 1/4” steel “imbedded” plates in the concrete tops. The plates have four bent pieces of 3/8” re-bar welded to each of them and placed in the concrete.

In our benches, we built in an adjustable seat or stool. That is just one more thing we do not have to bring with us to the range.

Kyle, practices for another 250-25 on one of our benches at our range in San Angelo, Texas.

These benches were actually dug up and moved from our old location to our new one when we lost our lease from the City.
The Dietzville Bench Rest Club in New Braunfels, Texas, at their Dietz Gun Range, chose to use round concrete legs to hold their “T” shaped benches. Fred Jamison says that this range hosted the last BR50 Masters Tournament in 1998. Today the club shoots ARA.

Six, eight, or ten inch round “Sonotube” formed concrete legs work quite well as legs for benchrest benches. This is the same material that is used to make forms for round building columns and even bridge columns. Notice the clean look of the benches and the overall neatness of the range.

The Pennsylvania 1,000 Yard Benchrest Club uses concrete blocks for legs under a trapezoidal top. Concrete block legs are a good way to go. Filling the voids with concrete makes the legs stronger. Re-bar into the base slab and from the top into the legs would also be a plus.

I know that normal wind will never effect the benches but we should build these benches as if some big old boys were going to be jumping up on the bench to sit.

My thinking is we should build like anything that might happen, probably will.

This well known club has first class facilities. One cannot help but notice the attention to detail that has gone into the planning. Notice the individual slabs surrounded by gravel and grass. Planning has really made a difference.
Another variation of the concrete block base is to be found at the very excellent shooting facilities of The Palomino Valley Gun Club North of Sparks and Reno, Nevada.

They have a clever base of concrete blocks that are joined together in a stout “T” shape and an arrangement with steel that allows for a sturdy cantilever on the rear of the bench.

This looks like a very workable bench for the handicapped, as well as, the rest of us.

Jan Sarras sums it up like this, “We did not really know too much about doing the work, but with a few willing members the benches turned out great and in less than two weeks”. Steve Archibald is grinning after shooting a one hole group.

There is nothing better than a good project to bring a club together and build friendships.

A very popular concrete block legged bench uses 8”X8” blocks for legs. These will work quite well. Although these benches are steady, I would prefer the the legs filled with concrete and re-bar into the concrete slab and the concrete top, just for safety.

The shape of the top is one that uses an extra long “T”. Some people like the extra room that this shape gives at the rear of the bench.
There is another class of fixed bench that has to be discussed. “The Gold Standard” of benches you might say. The monolithically concrete poured bench. One piece bench.

These are the benches at the Visalia and Fresno clubs in California. They were formed and poured in place with one continuous pour.

Holes were drilled into the slab for steel. There were several sets of forms and they were used on both ranges.

Boyd Allen who worked on both projects says that benches tend to be around forever, so take your time and get it right.

I believe that they did it right. These benches are very labor intensive, but very worth it.

Built in Sweden, these benches are both stout and stylish. We can get precast park benches. Why not precast benchrest benches. These can set these in constructive adhesive to so they won’t blow around your range in the wind if that thought is worrying anyone.

I believe that someone could design and build some benches similar to these but with three precast concrete members with steel imbeds that can be welded together. It is being done in tilt-up concrete walls in buildings.
**Moveable benches**

Another class of benches that is a challenge is a moveable bench. I am not talking of a portable bench, that is another class altogether. One that is very steady, yet can be moved by one or two people around a range so that some other class of shooting can occur.

I have made it a project to build something that I think could answer the problem. This is my second prototype and it is getting close to what I want. I can see improvements.

The frame is 14 gage 4” square tubing. I cut out the steel behind all of the joints with a metal cutting jig saw blade and welded the joints. I then poured concrete into the tubing and it flowed through and through. The welded 1/8” steel floor plates allow for the bench to slide more smoothly on concrete. I preset bolts in the top and bolted it on to the frame.

There are 75 pounds of steel and 400 pounds of concrete in the bench yet I can lift the back high enough to kick a low 4 wheel dolly under the frame and move it around. A better way to move it would be to raise the bottom braces to about 3-1/2” off the floor and use a warehouse pallet jack to move it. While two men in my shop can slide this bench all over, I prefer a fork-lift.

I like that this bench can be built in a shop or a barn where you have all the tools and jigs that are needed. A club could easily sub out some or all of the work if they are so inclined.

There is a lot to be said in favor of this type of bench. With “moveable” benches a club is free to change the range around from time to time. The benches could be moved closer together or farther apart. They can even be moved to another range if the need arises.
“Parting shots”

My friend Boyd Allen has suggested a few things that must be included in this Benchrest bench study. Boyd has worked on the benches at the Visalia and Fresno California. He knows what he is talking about.

The shape of the bench tops must take into consideration the need for usable space for everything the shooter will need as well as conformity to rules of the different shooting events. The rifle should extend beyond the end of the front bench.

A 34” bench height is what Boyd prefers. It is easier for a short shooter to adjust his stool than for a tall shooter to bend over. I am short and from where I stand the opposite is true. I like 32” but I can shoot just as well at 34”.

There must be enough space between benches to walk through, never less than 24”. I believe 5’ on center should be the bare minimum for benches, more would be better if it is not wasteful of your range space.

Rigidity is of the utmost importance. There should be no movement when you lean against the “tail” of the bench from the side or the end.

Keep your bench project within the skill range of your members. If you are using volunteer help it is very important that you finish before your help drifts off and the project dies. This should be a club building project.

From Boyd’s experience it is most important that once you design a bench on paper, you should build a mockup of one out of plywood and scrap and let everyone sit at it and see how it works before you build a range full of badly designed benches. This step is called prototyping and I can vouch for the necessity of it. I always build several prototypes of any new product I make.

This is only a few ideas for Benchrest benches and I have not included a lot of construction details. I believe that this is more than enough for the right individuals in various clubs to start action. I hope to see some great looking benches.