

Folding Target Archery Stand

As the Director for Target Archery for the 2009 Huntsman World Senior Games in St. George, Utah, I took up the challenge to build target stands for the event. Having had experience the previous year with wobbly stands tied together with twine, I set out to design new stands that would be sturdy, light weight, easily moved for distance changes, easy to set up and take down, and would be compact for storage. After getting ideas from other stands I saw on the internet, in magazines, in the FITA Target Manual, and from personal experience, I designed and built the stand presented here.



I built 13 of these stands which were all used for a three day tournament accommodating 31 archers. Because of venue limitations, all of the stands and target mats had to be set up and dismantled each day and stored on site in a truck. With this design, it took less than a minute for two people to unfold and secure the stand for use in the morning, and just as quickly fold and secure the stand each afternoon. With the wheels and short side arm extensions, it was very easy for one person to move the stand and mat forward to the next distance. We had several senior ladies that had no problem moving their targets. The stand, with wheels, weighs 25 pounds and is easily stacked, loaded, and unloaded.

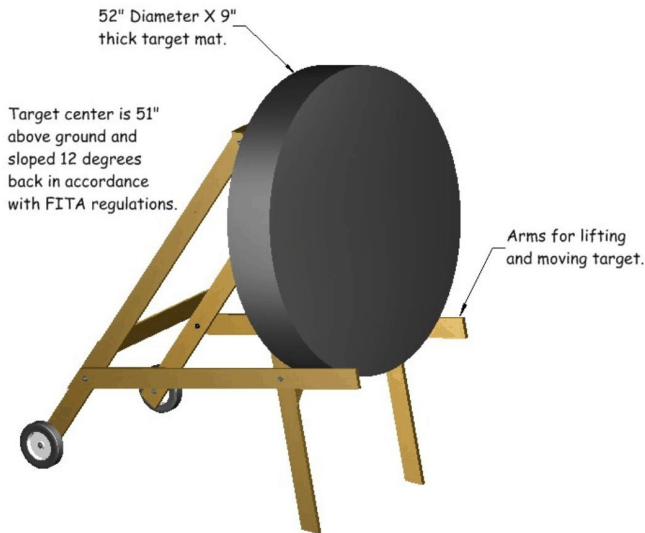


These stands met all of my expectations and I plan to build more as the tournament grows (and paint the stands already built.) The only reservation I have at this point is the maintenance of the legs. After the first tournament, we had a few minor arrow holes in the lower edges of the legs but no major splintering. I anticipate some yearly maintenance of the legs.

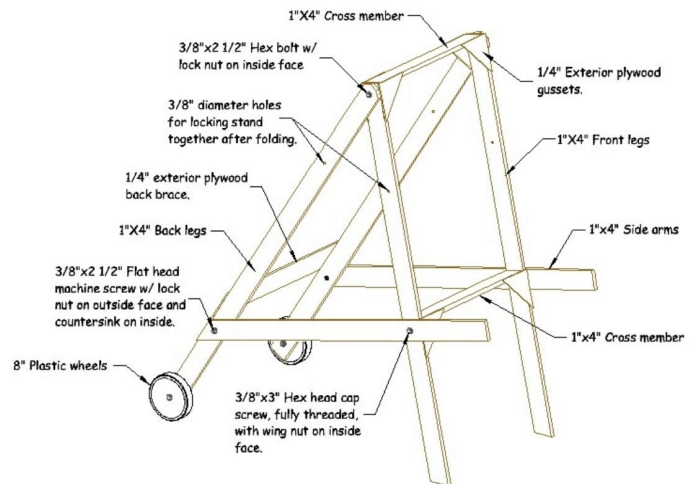
On the following pages are illustrations, dimensions, instructions, and a materials list for constructing these stands. Please note that there is an optional longer back leg shown that can be used without wheels. These drawings are not proprietary, so feel free to use them as you see fit.

Allen Floyd

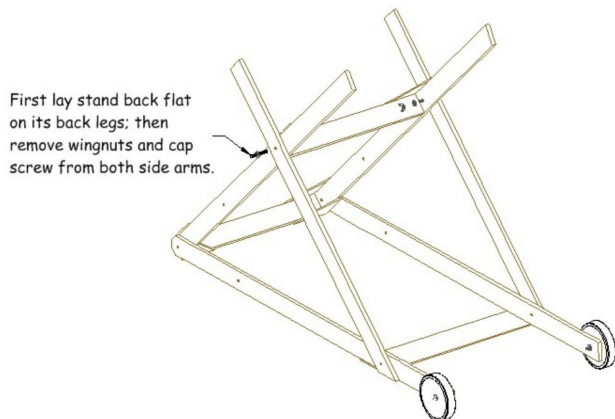
Folding Target Archery Stand



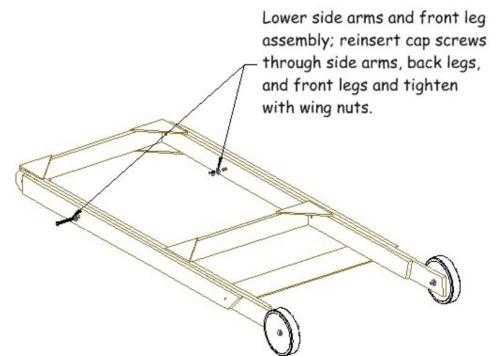
Wheeled Stand with Target Mat



Stand Components



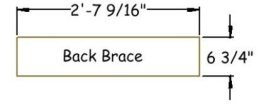
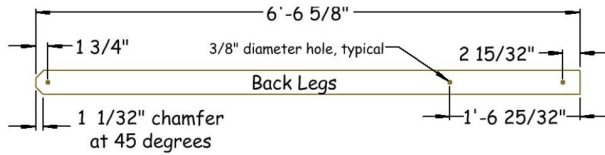
Step 1



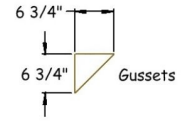
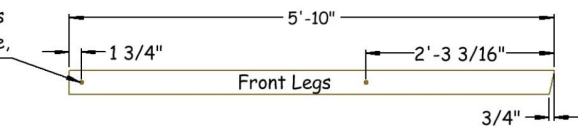
Step 2

To Fold Stand

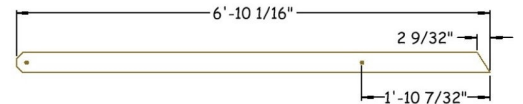
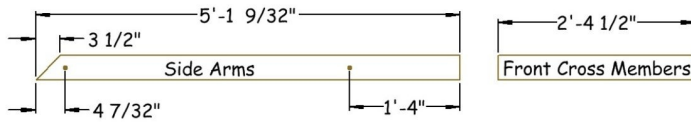
Folding the stand is performed most quickly with two people, one working on each side of the stand. To unfold, just reverse the procedure shown above. Note that both operations first require that the stand be positioned on its back.



3/8" diameter holes drilled on centerline, typical all legs and side arms.

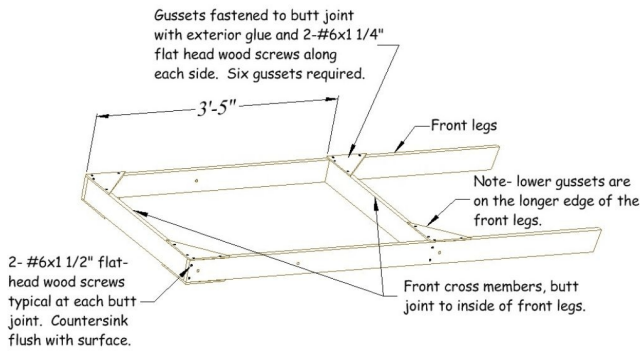


1/4" Plywood Member Dimensions

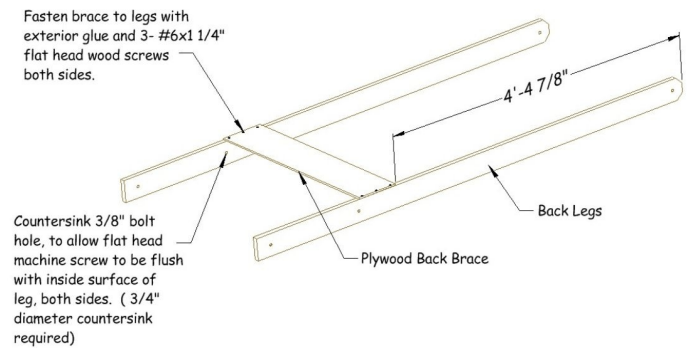


1"x4" Member Dimensions

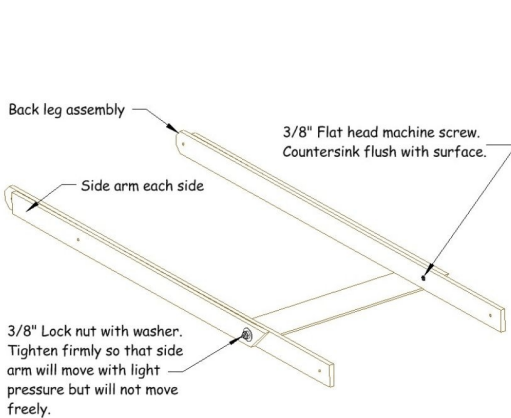
Optional Back Legs without Wheels



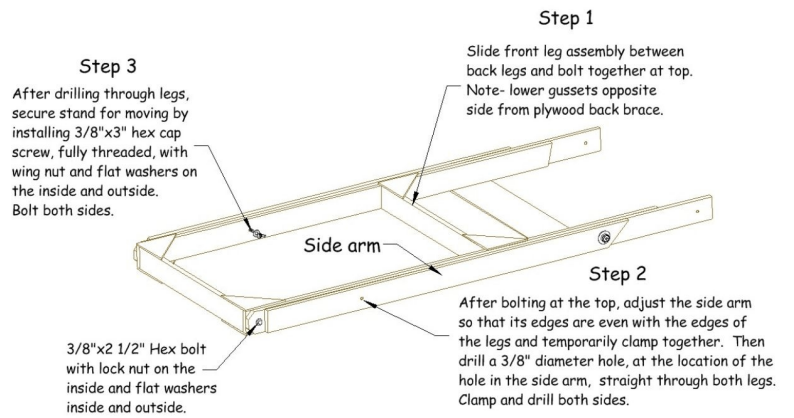
Front Leg Assembly



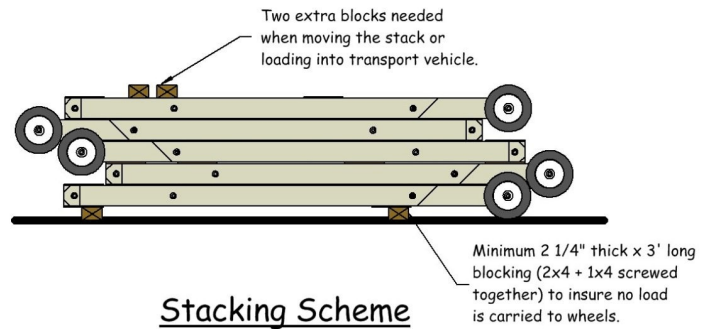
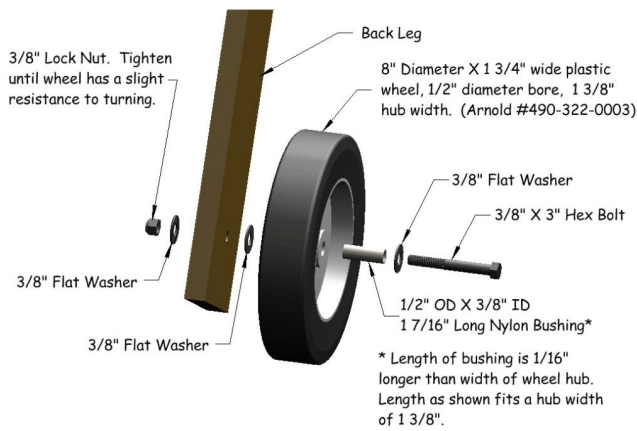
Back Leg Assembly



Side Arm Assembly



Final Framing Assembly



Wheel Assembly

General Design and Building Notes

1. The actual dimensions of the nominal 1"x4" boards used in this design are 3/4" x 3 1/2". All boards are pine, as straight and warp free as possible.
2. The plywood is exterior grade with a minimum of C grade outside veneers.
3. Glue is waterproof "Titebond II" wood adhesive.
4. Fasteners:
 - a. 3/8"-16 X 3" Full thread hex cap or tap screw.



- b. 3/8"-16 X 2 1/2" Full thread flat head machine screw or stove bolt.



- c. 3/8"-16 X 2 1/2" and 3" Hex bolt.



- d. 3/8"-16 Lock nut.



- e. 3/8"-16 Wing nut.



- f. #6 X 1 1/2" and 1 1/4" Flat head wood screw.



5. Wheel bushings are cut to length from 1/2" OD (outside diameter) X 3/8" ID (inside diameter) nylon tubing. Metal tubing (aluminum, brass, or steel) can also be used. When metal tubing is used, reduce length by 1/32". The bushing can be omitted altogether by drilling a 1/2" diameter hole in the back leg and using a 1/2" diameter bolt. Without a bushing the wheels tend to wobble and wheel rotation is very sensitive to lock nut pressure.

Material List

| Item (Part#, Source) | Unit | Qty | Cost | Total |
|---|------|-----------|------|---------|
| 1"x4"x8' board (HD)* | Ea. | 4 | 2.73 | 10.92 |
| 1"x4"x6' board (HD) | Ea. | 2 | 2.55 | 5.10 |
| 1/4" Exterior Plywood (HD) | SF | 2.5 | 0.56 | 1.40 |
| #6x1 1/2" Wood Screws (HD) | Ea. | 8 | 0.05 | 0.40 |
| #6x1 1/4" Wood Screws (HD) | Ea. | 30 | 0.05 | 1.50 |
| Fasteners are Hillman bolts from Ace Hardware Stores: | | | | |
| 3/8"x2 1/2" Hex Bolts (#190183) | Ea. | 2 | 0.43 | 0.86 |
| 3/8"x3" Hex Bolts (#190189) | Ea. | 2 | 0.50 | 1.00 |
| 3/8"x3" Full Thread Hex Tap Bolt (#221027) | Ea. | 2 | 0.59 | 1.18 |
| 3/8"x2 1/2" Flat Head Stove Bolt (#1808-F) | Ea. | 2 | 0.95 | 1.90 |
| 3/8" Lock Nuts (#180153) | Ea. | 6 | 0.17 | 1.02 |
| 3/8" Wing Nuts (#180255) | Ea. | 2 | 0.40 | 0.80 |
| 3/8" Flat Washers (#270061) | Ea. | 16 | 0.10 | 1.60 |
| Wheels (www.ronshomeandhardware.com without shipping) | Ea. | 2 | 3.00 | 6.00 |
| Nylon Bushing (nylon tubing ordered at www.mcmaster.com #8628K28, \$5.12 + shipping for 5' section) | Ea. | 2 | 0.27 | 0.54 |
| Wood Glue (HD) | Oz. | 0.7 | 0.38 | 0.27 |
| | | Subtotal | | \$34.49 |
| *(HD)- Home Depot | | Tax 6.25% | | 2.16 |
| | | Total | | \$36.65 |