

Appendix C

PVC Archery Curtain Frame

The CPW Outreach Programs often use field locations to host introductory archery events. As discussed previously, we prefer to use an established archery range as it provides the most secure area for the event. If a field location, such as the one discussed in Appendix A, is used, we can construct a simple frame from which to hang a Kevlar safety net in the field as a backstop. Most of the construction materials are available at local hardware stores. The construction cost of the materials is approximately \$300.

Construction Plans

Purchase List

- 10 - 2" PVC- comes in 10' sections
- 2 - 24" length 3" PVC- From flange to reducer- 4-5" cut
- PVC primer and glue
- Paracord (for hangers)
- 6 - ½" or thicker plywood 2'x2' squares
- 24 lag bolts, nuts, washers- to attach flange to plywood (match size to fit flange, 1" should be fine)
- 6 - Toilet Flange- 3"
- 6 - Reducer- 3" to 2"
- 4 - 2" T-s
- 4 - 2" elbows
- 2 - 2" angle (22 degrees)
- 2 - 2" couplers for repairs?
- Rubber mallet
- Sand paper- for plywood bases
- Step ladder
- Straps or bungee cords for storage or hauling

Cut List

- 2 - 60" (front rails)- do you want the range deeper than 5"?
- 2 - 78-½" (front corner poles- exact length will be determined with junctions)
- 2 - 73" (corner poles)- exact length needs to be determined based on junctions)
- 3 - 7' (rails)- If cut to 7', you can get 14' width with only 2 rails and 1 center post. If you want 18' width, cut 3x 6' sections. You can also cut these to 8' depending on desired range size
- 2 - 42" plus reducer and angle (approx. 22 degrees) center post lower section (TBD)

- 2 - 32" plus T- center post upper section (TBD)
- 6 - 3" pipe cut to 3"

Tool List

- Sawzall or circular saw. Power mitre works great to cut PVC
- Drill
- File
- Pencil
- Tape measure
- Sharpie, colored tape, or something else for labels

Assembly

Bases

- Cut or buy plywood at 2'x2'
- Determine center, place toilet flange near center, and screw base in. (Be sure to measure the actual thickness of plywood and flange to determine screwsize)
- Carrying handles - use jigsaw to cut carrying handle on one side of each base. Sand smooth

Posts and Rails

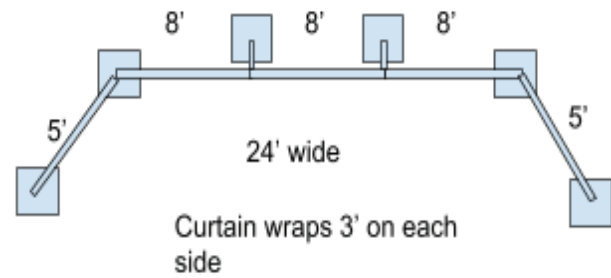
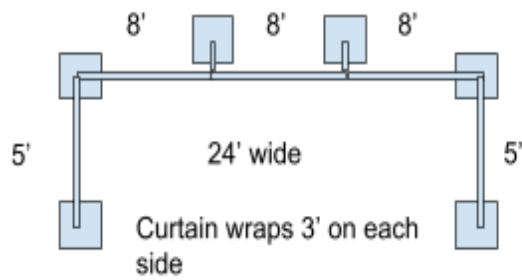
- Posts will fall into 3 sizes - 2x front corner posts 85-½" total length, 2x rear corner posts 90-½" total length, and 2x center posts. The center post lengths should be measured last to estimate size compared to rear corner posts.
- One end of all posts will require gluing the reducers to meet base flanges. Do not glue flanges to the 3" black pipe. This is a dry fit connection when setting up in field.
- The other ends will have junctions glued on
- Middle posts use an angled joint. Glue the reducer on to the section that dry fits the toilet flange. Glue the T-connection to the top section. This dry fits into the angled connector. The angled connection allows for the middle posts to sit behind the curtain and allow the curtain to hang loose. An arrow from a 20 pound drawn bow will go through the curtain and the pvc pipe if the curtain and pipe touch.
- Center Rails - No glue or joints. Just dry fit into all connections by tapping with rubber hammer.
- Front Rails - cut these to desired sizes depending on range setup. It is recommended to glue the elbows to both sides of these rails to pivot to desired angle. The arrow curtain can wrap on each side creating a more contained range. 45 degree or 90 degree is possible.
- Important Note - double check measurements! Some connections come in different sizes. The center rails should all be at the same height. The front rails will be slightly higher but should match. The connector stubs can be cut to different lengths depending on your need.
- Option - if 7' too tall for transport, hang the curtain at 6' tall curtain and use shorter targets. If you need more height, add couplers to posts.

Hangers

- Cut paracord to size and tie in loops.
- Optional - Label how many loops each rail gets.

- Attach loops to carabiners.

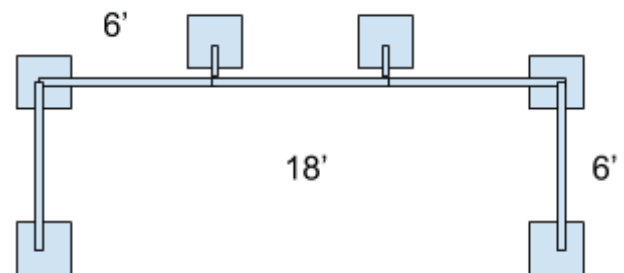
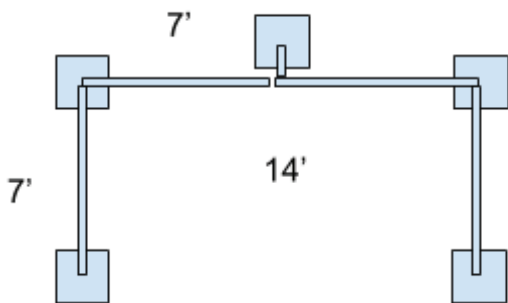
Range Set up as viewed from above:

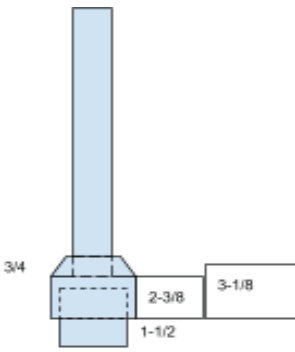


Options

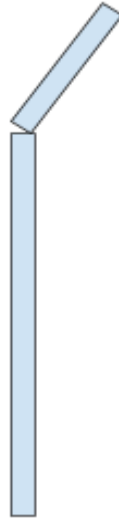
- The height above flange is about 7-½ foot tall- longest piece. 8' tall posts will require a step ladder for most people to assemble frame onsite.
- If you cannot transport 8' rails, consider other options. Cut 5x 6' rails for 30 foot range, which will require more center posts with angles, or cut 4x 7' rails which provides up to 28 foot range and will require another center post with angle.

Options to range sizes. Cut rails to desired lengths. Add plywood base and center poles as needed.





Glue 3" black PVC into 3" to 2" reducer. Glue 2" pole into the other side. The black PVC dry fits into the 3" toilet flange attached to 2' x 2' plywood base.



Center poles use an elbow connector. This allows the arrow curtain to hang in front of the poles. Curtains that are tight with poles will allow arrows to pass through curtain and PVC poles.

This curtain frame works great indoors. It will work outdoors as well, but will need a sandbag on every plywood base. On windy days, consider attaching guy lines to corner joints and staking into ground.

Assembly usually takes 10-15 minutes and uses a rubber mallet to tap in dry joint connections.

To assemble in field:

Lay out plywood bases. Dry fit all poles into bases, including middle angled poles, and align bases to rough shape of range. Slide hanger loops on each rail. 8' rails usually need 8 or 9 loops. Starting in a corner, place rail into corresponding pole connection and tap in with rubber mallet. Work your way around the frame tapping the connectors with rubber mallet. Place sand bags if needed. Hang curtain using carabiners from loops.





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