PVC Snowshoes

The plans below describe how to make a set of “bearpaw” sized snow shoes. This method can be adapted to make longer snowshoes by simply lengthening the form and using a longer piece of pipe. Significantly longer snowshoes should have a second crossbar.

Tools

PVC Cutter or hacksaw
Leather punch
Straight edge/ruler
25’ tape
Sharp scissors
Compass
Propane torch/gas stove for melting rope ends
Building the form only: Band saw, screwdriver, miter saw

Bill of Materials

Item	Qty	Cost	Amount
Frame			
¾” x 10’ Sch 40 PVC Conduit	1	1.25	1.25
½” x 10’ Sch 40 PVC Pipe Conduit	.15	1.00	.15
¾ x ½ SSS PVC Tee	4	.50	2.00
¾ SS 90o PVC Elbow	2	.30	.60
PVC Glue			
Decking			
1/8” Parachute Cord (mil spec)	80 ft	.05	4.00
6 ½” x 24” Decking from PVC Truck Tarp or Hypalon	2	varies	
Binding			
¾” nylon strap	14	.50	7.00
¾ nylon strap buckle	2	.75	1.50

Bending Form

A form is used to make consistent shape of the snowshoe. The form can be made from scraps.

The form size is 7 ½" diameter half circles.

Bending the Conduit

Sand heating using a propane burner and Dutch oven. Note: Dutch oven will need to be re-seasoned. Don't use an aluminum pan.

1. Heat dry sand to 350 degree (oven thermometer).
2. Mark center point on the pipe to aid in alignment.
3. Place pipe in a coffee can with an inch of sand in the bottom. Using gloves, a metal funnel and two people pour hot sand into the vertical pipe until full. When pipe starts to become flexible turn over and add a new batch of hot sand. Don't let it get too hot.
4. When all parts of the pipe are flexible drain out sand.
5. Quickly connect the ends with the elbow and place on the form.
6. Let cool until no longer flexible.
7. Pour sand back into pot, stir, and reheat.

Making and Installing the Crossbar

1. Choose a tee with a minimal stop inside the fitting.
2. Using a bandsaw with a fence or a hand saw cut tees so that they are still about 2/3 of a circle. This will allow the tee to be pressed over the ¾" pipe. If the stop in the fitting is too deep then remove with a round file.
3. Depending on the manufacturer of the tee measure and cut ½" pipe to fit across snowshoe (about 7").
4. Glue in one end of the crossbar. BE SURE THE PIPE IS COMPLETELY SEATED in the fitting.
5. Glue the second end. BE SURE TO ALIGN THE TEES BY PRESSING FLAT ON A BENCH.
6. The crossbar should be installed 16" from the inside of the elbow to the heel side of the crossbar. Mark the position then install by removing the elbow from the snowshoe frame. Glue and pop the crossbar(s) in place. Let the glue dry for a few minutes.
7. Glue the elbow in place.

Cutting the tees on a bandsaw with a fence

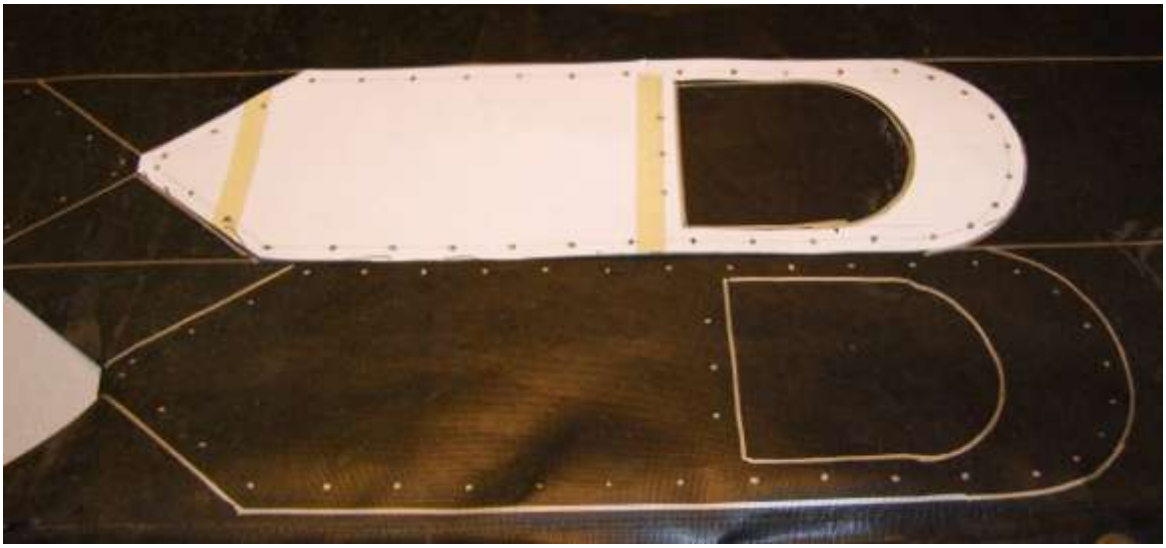
Cossbar assembly

Installed crossbar.

Making the deck

The decking material needs to be strong and tear resistant. Grommets can be used but add to the building time and cost.

1. Make a pattern with stiff paper using a snowshoe frame. Mark and punch 1/8” holes in the pattern with a leather punch
2. Using the pattern transfer cut out and punch deck.

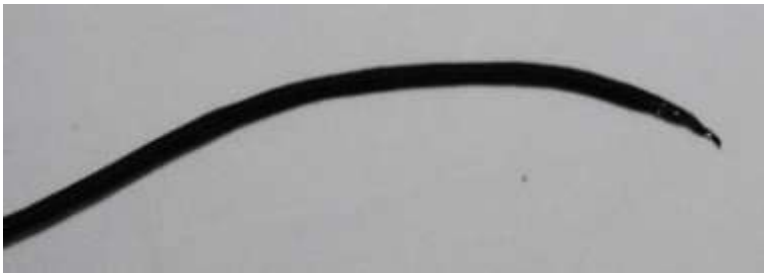


The pattern and a marked deck ready to cut and punch.

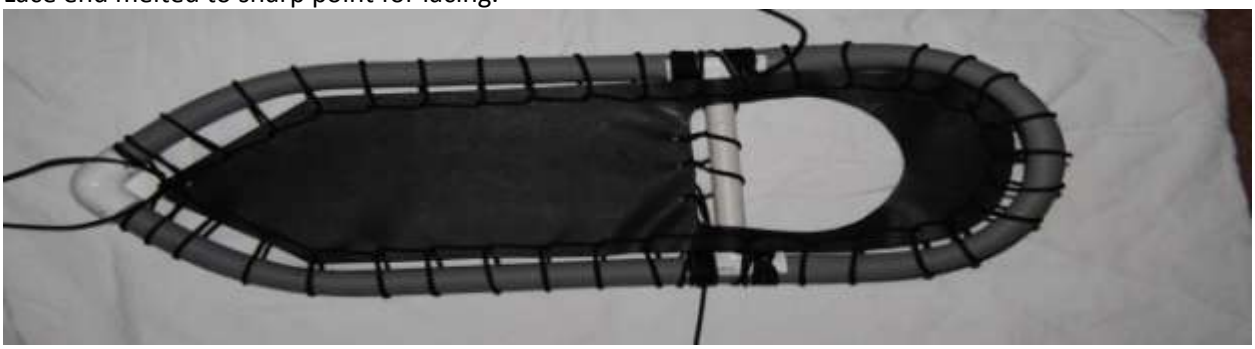
Snowshoe Lacing

1. Cut 2 pieces of 1/8” parachute cord at 25’ (for perimeter) and 2 pieces 15 feet (for the cross bar). Heat the ends on a flame to prevent raveling. Hint: Using a piece of heavy paper draw out the melted end to make threading easier. DO NOT TOUCH HOT MELTED END.
2. Glue the cross bar in place 16” from the inside of the elbow to the bottom (heel end) of the crossbar.
3. Glue the elbow in place.

4. Wrap the crossbar TIGHTLEY in place. Begin with a clove hitch, place 4 wraps on each side of the crossbar. End with a clove hitch.
5. Make a clove hitch on the crossbar. Lace in the decking with enough slack to allow for a ½" space. End with a clove hitch on the crossbar.
6. Begin the final crossbar wrap with a clove hitch and wrap tightly, ending with a clove hitch. Leave the end uncut.
7. Starting at the heel end (use a clove hitch to temporarily tie off the end) of the snowshoe begin lacing using half hitches. Lace loosely so you can adjust later.
8. Adjust the lacing around the deck so it is snug and decking is evenly spaced between the pipe. Make the final tie with a square knot and then a few of half hitches on the loose ends back on the rope.
9. Only after you have double checked the lacing trim the rope ends and hot glue in place to prevent loosening.

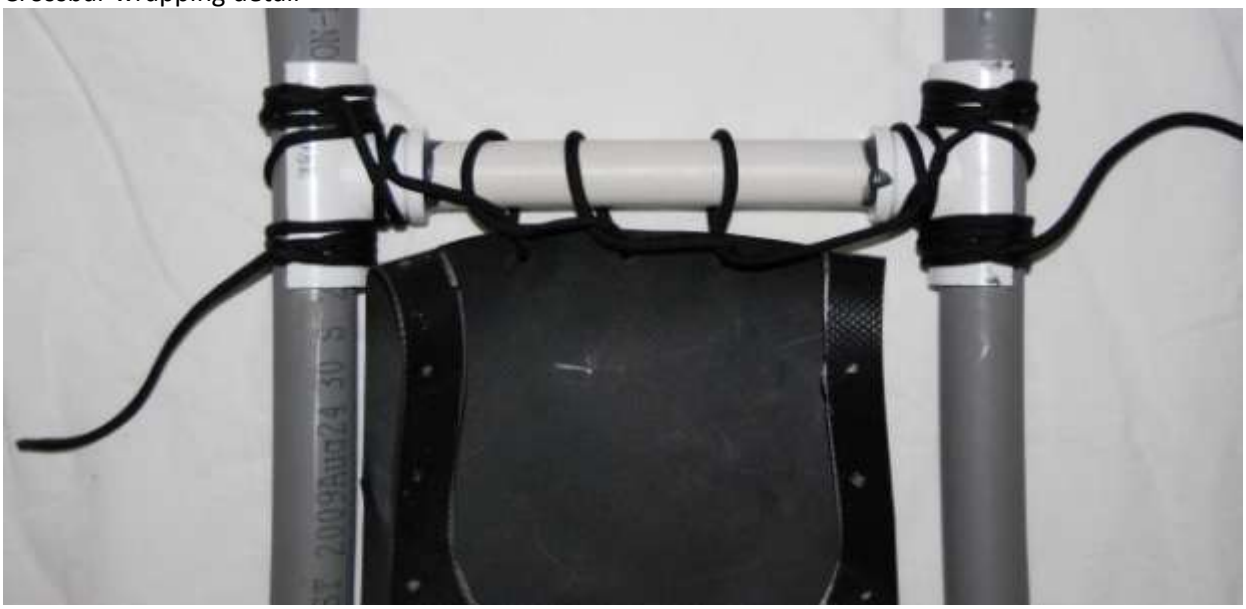


Lace end melted to sharp point for lacing.



Finished Lacing

Crossbar wrapping detail



Lacing of the crossbar

Starting the lacing with a temporary clove hitch to keep the rope end in place.

Lacing detail. Lacing is a series of half hitches.

Finishing the lacing of the tail. Note that the lacing goes to the opposite side and is finished with a square knot and half hitches. A twist or two in the final wrap around the frame helps keep the tail decking in place.

Making the binding

A variety of bindings can be used. The two below is based on a simple Indian design. A puchased binding can also be used. Comerical bindings cost $30-$80.

Binding 1

Made from 7’ of ¾ nylon flat webbing. A scrap of inner tube, leather, or Hyplon can be used to keep the webbing together and make it easier to put on.

Use of a triglide to make the strap adjustable. Strap could be sewn, but the triglide makes installation and sdjustment easier.

Heel cross using an looploc to keep the straps together.

Binding is attached and tightened with a ¾" side release buckle. Toe using a piece of inner tube, but slick boots this tends to slip off.

Binding 2

A "lampwick" binding made from 6' of ¾ nylon flat webbing. This is a simple binding, but the main drawback is getting it over the toe with mittens.

Toe lacing detail.

Other Binding Resources

http://www.trails.com/how_9747_homemade-snowshoe-bindings.html

http://www.wildernessrhythms.com/snowshoelace/snowshoe.html

http://myweb.cableone.net/bcanderson/Snowshoes/Snowshoes.html

http://www.bamsoftware.com/camping/snowshoes.html

http://www.bamsoftware.com/camping/snowshoes.html