

## Hyperbolic Paraboloid

In my search for alternative solutions, I considered the hyperbolic paraboloid – “hp” (think potato chip shape). For my feasibility prototype I used wires to loosely connected four redwood laths 4’ long into a square. By propping up , two opposing corners to a little over 1 foot, I formed the outline of my hp.

A polyproploene weed blocking material with a fifteen year guarantee was cut into 12” wide strips and glued to the sides and each other, with a solar protecting roof coating (with a ten year gurantee).



The roof coating was poured into a plastic bag with a press-to-seal opening, and a corner was cut off so that it could be squeezed out like a cake decoration. A clip was used to close the corner when not in use (a clothespin would also work).

The rest of the top surface area was painted with a small brush. During this process it is important to work the coating into the mesh.



The completed structure weighed just 2.4 lbs. The piece of brick sitting on the tip of the cantilevered portion below, weighs 0.8 lbs. – one third the wright of the entire structure. The material used is entirely flexible, and maintains its shape because of the lightweight frame.



Take another look at the one supporting the piece of brick. Four of these joined at the peak could form a single roof for a 8’ square shelter for less than \$30.00.

I would recommend using a metal frame and supporting the fabric with a wires (or a wire mesh) for any structure segment larger than this one.