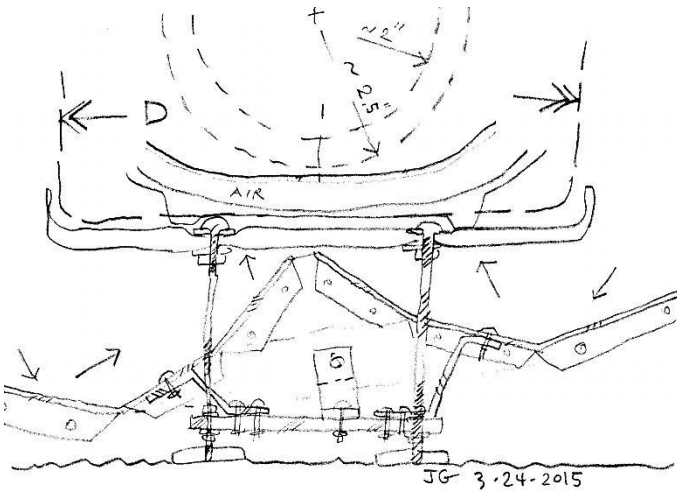


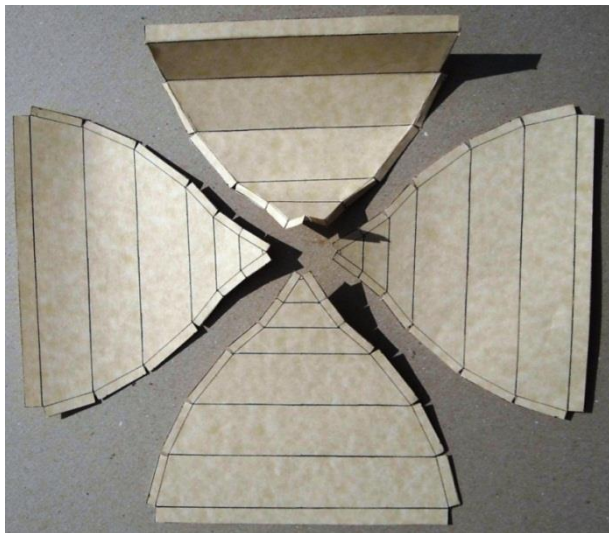
# Solar Cooker Reflector Studies

Joel H. Goodman

3-24- 2015



Section at base of inclined reflector study

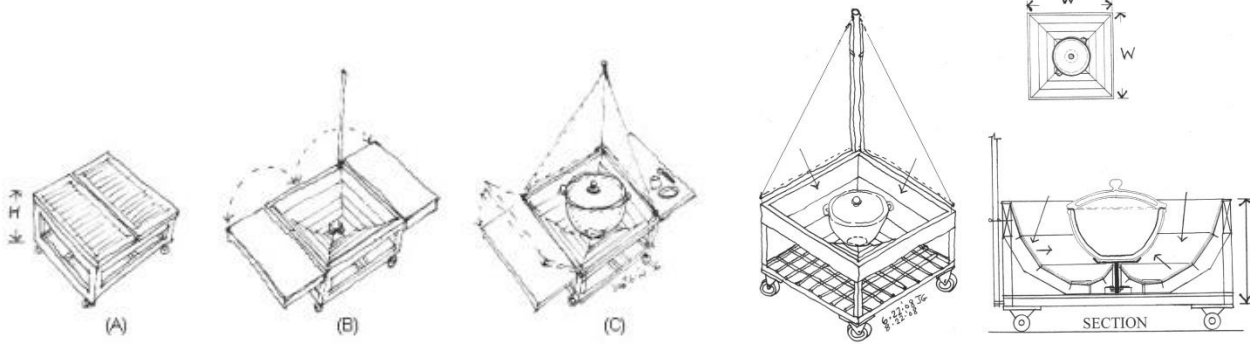


Three types of cookers were discussed: mainly a lightweight stand alone easy to carry inclined cooker; and a cooker cart with same reflector horizontal; and briefly a metal “cookit” type cooker. A range of cost estimates for production quantities of identical metal full panels may be a few to large numbers. The main nonimaging reflector design target may be about the size of the SCI 3 lb roaster, and the inclined and horizontal reflector should be large enough to block wind loads to the HotPot TM cooker.

A base study for inclined reflector (~13 deg from horiz) was considered without using glue, perhaps with folded over scrap metal bolt clips, and four vertical bolt-posts (not in a square) positioned to keep the HotPot TM from sliding. A concern is dissimilar bolt and reflector metals touching. A suggestion is to order a cardboard “cookit” from SCI and some extra metal reflector and consider a metal “cookit” type cooker if time permits.

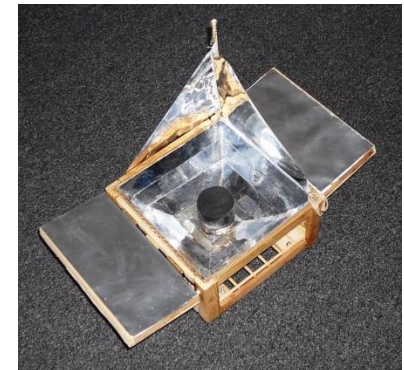


Anodized aluminum reflector mock-up full-size model with 3lb SCI roaster



Solar Cooker Cart

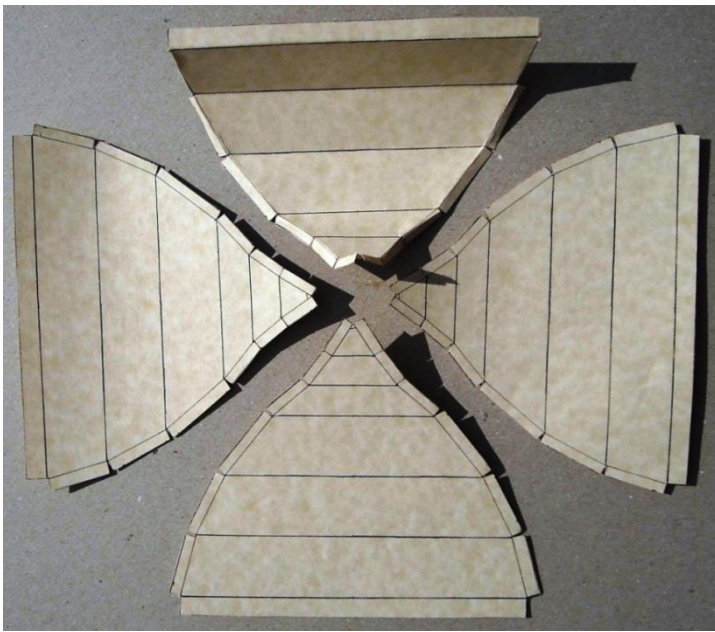
Aug 16, 2008  
Joel H. Goodman June 2, 2008



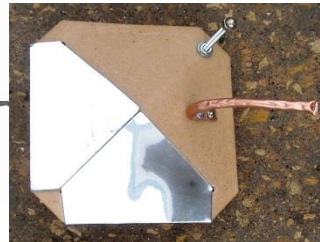
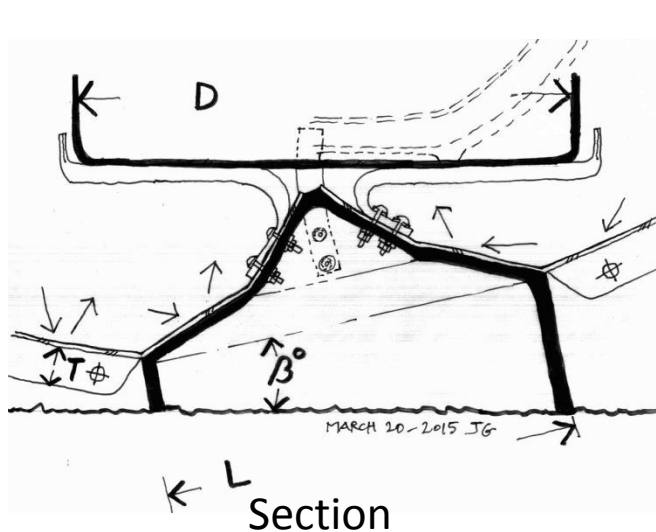
Solar cooker cart

# Stand-alone solar cooker study notes

March 19-2015 JH Goodman



4 identical reflector full segments



In reconsideration of the weighted base in previous studies, a weighted base may not be needed because the weight of the food and pot can stabilize a lightweight solar cooker during moderate wind gusts. Lightweight to bring inside and take outside almost daily with ease. The weighted base previous form work however may be of interest modified to not hold concrete, sand or stones, easing the base component manufacturing process (injection molding, 3d printing, etc.) and this would have the pot holder and cooker inclination structure to resolve. Full identical reflector quadrant segments would reduce the number of reflector types to only one segment shape. A study in progress, continuing...

Perhaps a more direct way forward for a very low cost solar cookers for refugee camps is to make an anodized aluminum reflector similar in shape to the cardboard "Cookit" solar cookers.

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*Selected Publications:*

- Goodman, Joel H., *Building Integrated CSP Selected Studies*, SOLAR 2010 ASES Conf., May 2010, Phoenix, Arizona
- Goodman, Joel H., *Architectonic Reuse of Wind Turbine Blades*, SOLAR 2010 ASES Conf., May 2010, Phoenix
- Goodman, Joel H., *Building Interior Evacuated Tubes and Reflectors*, Solar 2009 ASES Conf., Buffalo, NY May 2009
- Goodman, Joel H., *Building Size Fixed Reflector CPC Troughs and Bowls for Food Processing Facilities*, Proceedings of the International Solar Food Processing Conference, ISES, Jan. 2009, Indore, India
- Goodman, Joel H., *“Architectural Active Solar Energy Reflector Collector Studies”*, Solar 2008 American Solar Energy Society Conference, San Diego, California.
- Porter, Kevin, editor, *“Building-integrated, non-imaging trough cooking systems”*, Solar Cooker Review, March, Vol. 14, Number 1, 2008, page 20, Solar Cookers International, Sacramento, California
- Goodman, Joel H., *“Architectonic Studies with Selected Reflector Concentrating Solar Collectors”*, 2007, Journal of Green Building, Vol. 2 Number 2, Spring, College Publishing, pp 78-108
- Goodman, Joel H., *“Architectonic studies with building size nonimaging reflectors”*, invited, Proceedings of the World Renewable Energy Congress IX, Florence, Italy, Aug., 2006
- Goodman, Joel H., *Active Solar Energy Engineering University Undergraduate Student Projects*, Proceedings of the ISES Solar World Congress 2005, Orlando, Florida, 8-2005