

Thru-Wall Kitchen Trailer with Unglazed Nonimaging Reflectors Studies

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Abstract (May 30, 2015):

A thru-wall nonimaging concentrator has an augmented unglazed fixed anodized aluminum (AA) reflector 'box' for trailer kitchens and pergolas. A ridged reflector base-bracket reflects sunlight upwards thru a grill to the cookware underside. Augmenting reflector is fixed on the trailer wall above the AA boxes and fabric reflector at E or W changed at solar-noon may be added. Target cookware that slide in-out thru a reflector top-hinged door for optical-thermal studies includes all-glass evacuated tubes and SCI roaster. The lightweight AA reflector box with wood-base is bracketed to a trailer wall and removed when on the road. A full size reflector box mock-up was fabricated with AA reflector sheet (0.020 in) hand-cut with scissors, pliers, and clamps. After cutting out patterns, and bending, quadrants were clamped together and bolted. The reflector box-shape is also of interest for substrates production with glued flat glass mirror segments for houses, restaurants and autoclaves.

Reference: Fend, Thomas, Gary Jorgensen, and Harald Küster, Applicability of highly reflective aluminum coil for solar concentrators, Solar Energy, Volume 68, Issue 4, 2000, Pages 361-370.

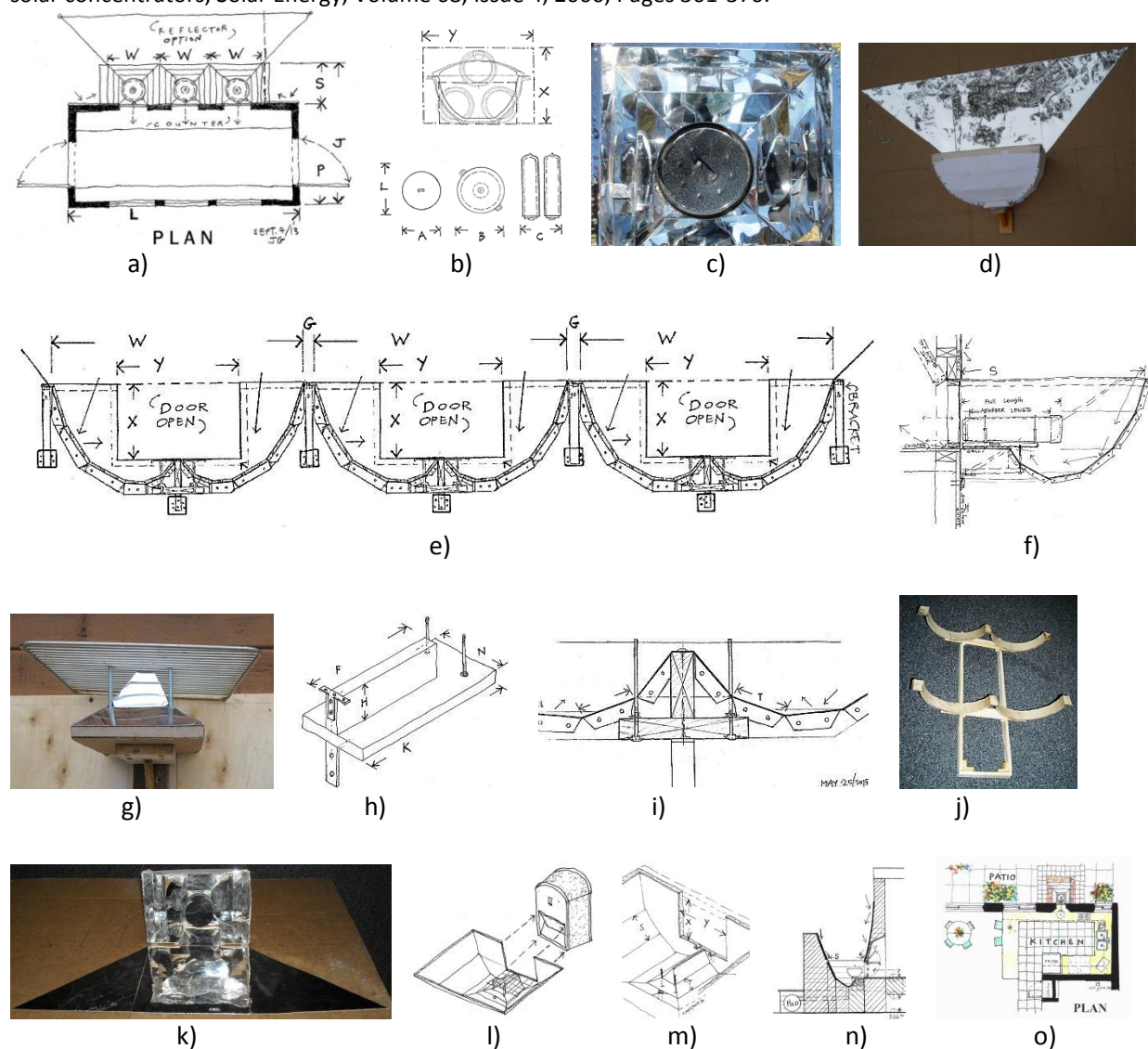


Fig. 1 Thru-Wall Kitchen Trailer with Unglazed Nonimaging Reflectors Studies