

Wisconsin

## **Thru Kitchen Wall Fixed Reflector Concentrator Solar Cooker**

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Thru-wall solar cookers have convenience for cooks however, there are solar access requirements for kitchens, buildings and site plans. An exterior fixed reflector nonimaging (NI) concentrator has a short EW line trough, a house kitchen wall side, and an added construction side. A movable (at noontime) east and west trough end lightweight reflector-banner is stored when not in use. Thru-wall NI concentrator solar cookers kitchen schematic plans are combined with improved fuel cook stoves and vent pipes (Fig.1). NI reflector concentrator design begins with oven-cooker target specification, i.e. a) glass bottom absorber-storage; b) fixed metal box; c) slide in-out metal box; d) slide in-out glazed oven; e) slide in-out fry pan with lid (Fig.1). Ovens within the lower concave NI reflector are sheltered from horizontal wind flow thermal losses. If the counter height (at oven door) is 36 in/915mm above the kitchen floor with lower outdoor ground level, a more substantial construction is required to support the fixed reflector concentrator, and a higher rainwater drain (at bottom of reflector) enables water storage with a higher gravity flow. Clusters of thru wall fixed concentrator solar kitchen houses have planning aspects effecting individual house plans including: solar access (not shaded by buildings and trees), toilets, gardens, streets, and trees. Therefore it is of interest to study house cluster planning before finalizing individual thru-wall solar kitchen house plans. Earthen masonry walls may be protected with reflectors (1), and NI fixed reflectors concentrate beam and diffuse radiation, with relaxed construction tolerances (2).

### **REFERENCES:**

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