

Starboard Solar Home

HUD Award Winning Passive Solar Home



photo by Pam McFadden

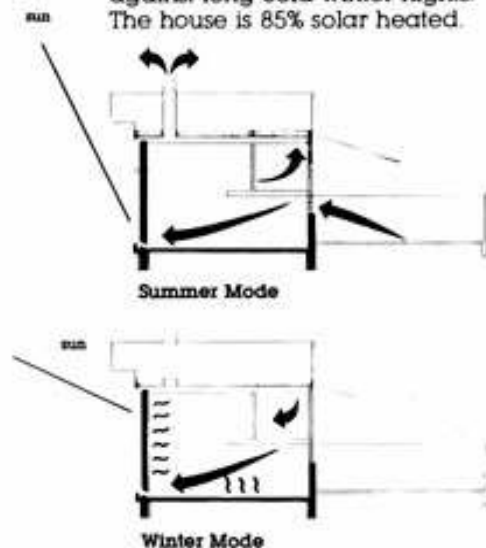
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The floor plan features a high atrium centrally located for natural lighting. Second floor bedrooms are separated by the atrium space. A connecting balcony overlooks the downstairs. A greenhouse is optional off dining room. Garage buffers the north side.

This Award Winning design by Colorado Sunworks, constructed in a Boulder Subdivision, demonstrates inexpensive solar heating in an attractive conventional format. The type of passive system used is the Mass Trombe Wall: a 12 inch thick vertical wall of solid concrete, two stories high. Generous openings allow sunlight to enter for day heating and provide for a view.

The wall, which is a solar collector, "holds" solar heat passing through its glass cover. The heat moves slowly through the wall reaching the interior surface in the evening. Warmth then radiates to the rooms as needed. At sundown a self-inflating reflective thermal curtain of five layers lowers itself automatically between the glass and the wall, insulating against long cold winter nights. The house is 85% solar heated.



The warm massive wall radiates heat to rooms on winter evenings. Surrounding low concrete walls add thermal mass, aiding summer cooling: night air drawn from side windows circulates naturally (no fans) up through wall cavity, cooling the mass, then exits at the roof hatch.