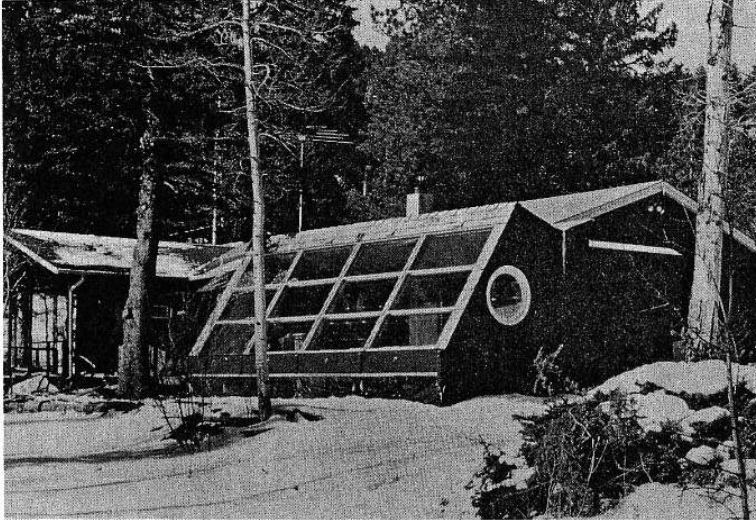


Solar Greenhouse

An attached solar greenhouse designed and constructed by Colorado Sunworks for the Rocky Mountain climate.

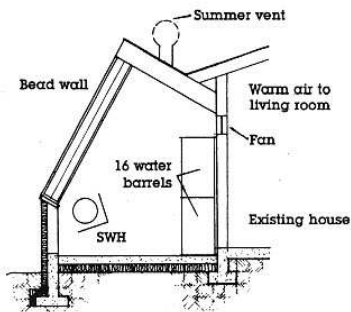


Cold Springs Solar Greenhouse — Nederland, Colorado

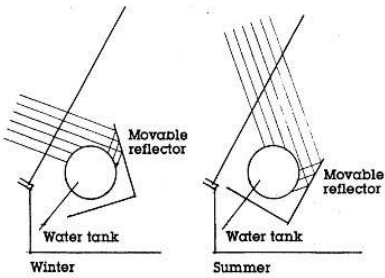
The photo displays solar greenhouse in 8,000 Degree Day climate that provides about 100,000 BTU per day to help heat the house, and an additional 300 sq ft of floor space for growing plants and food. It is a 2 x 6 wood frame structure with a large glass facade (210 sq ft) aimed at the winter sun. The glass is insulated at night by a Beadwall® system to help maintain minimum air temperatures of 55F degrees.

A small fan moves hot air out of the greenhouse and into the main house delivering heat and humidity on clear winter days. The fan is necessary to prevent temperatures in the greenhouse from climbing over 90F at midday.

Barrels of water stacked two high along the north wall for thermal storage rise about 15F degrees on a sunny day. They store heat for night time use, preventing daytime overheating. Details of performance and construction are shown below.



Glass is tilted 58 degrees to the horizontal to gain maximum solar aperture at this site. It has to be shaded by exterior curtains in the summer. The 350 cfm fan brings heat in winter to the house, dropping 15F before it returns to greenhouse through bedroom sliding glass doors left open. Summer ventilation is by roof ventilator and by cross-breeze through doors.



Passive solar tank heater

The simplest form of solar water heater—a tank placed in the sunlight—is augmented by a simple reflector as shown. The bright foil-clad reflector held by aluminum frame lights the back of the tank when positioned properly each month.

Greenhouse temperatures were recorded each morning during February 1978. Heat storage is depleted after the long cold nights. Morning lows range from 53F - 60F degrees. Note that barrel water temperatures ride 10F above air temperatures.

