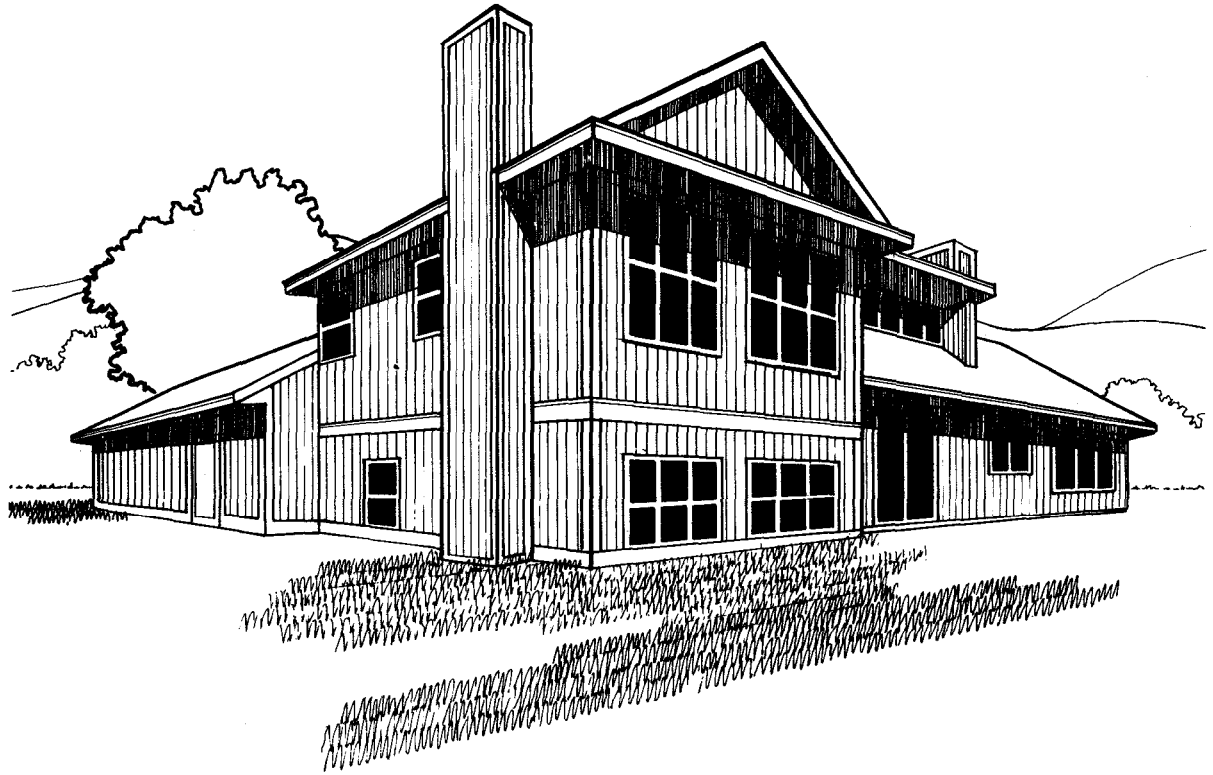


New Berlin, WI



Builder: Trustway Homes, Inc., Milwaukee, WI

Designer: Ray Prell & Associates, Brookfield, WI

Solar Designer: Roger Schiller, Trustway Homes, Inc.

Price: \$65,000

Net Heated Area: 1900 ft²

Heat Load: 72.0 x 10⁶ BTU/yr

Degree Days: 7635

Solar Fraction: 50%

Auxiliary Heat: 2.50 BTU/DD/ft²

Passive Heating System(s): Sun-tempering, direct gain

Recognition Factors: **Collector(s):** South-facing double glazing, 250 ft² **Absorber(s):** Tile surface, brick walls **Storage:** Concrete mass floor, brick mass wall—**capacity:** 19,000 BTU/°F **Distribution:** Radiation, convection **Controls:** Insulated shades, overhangs

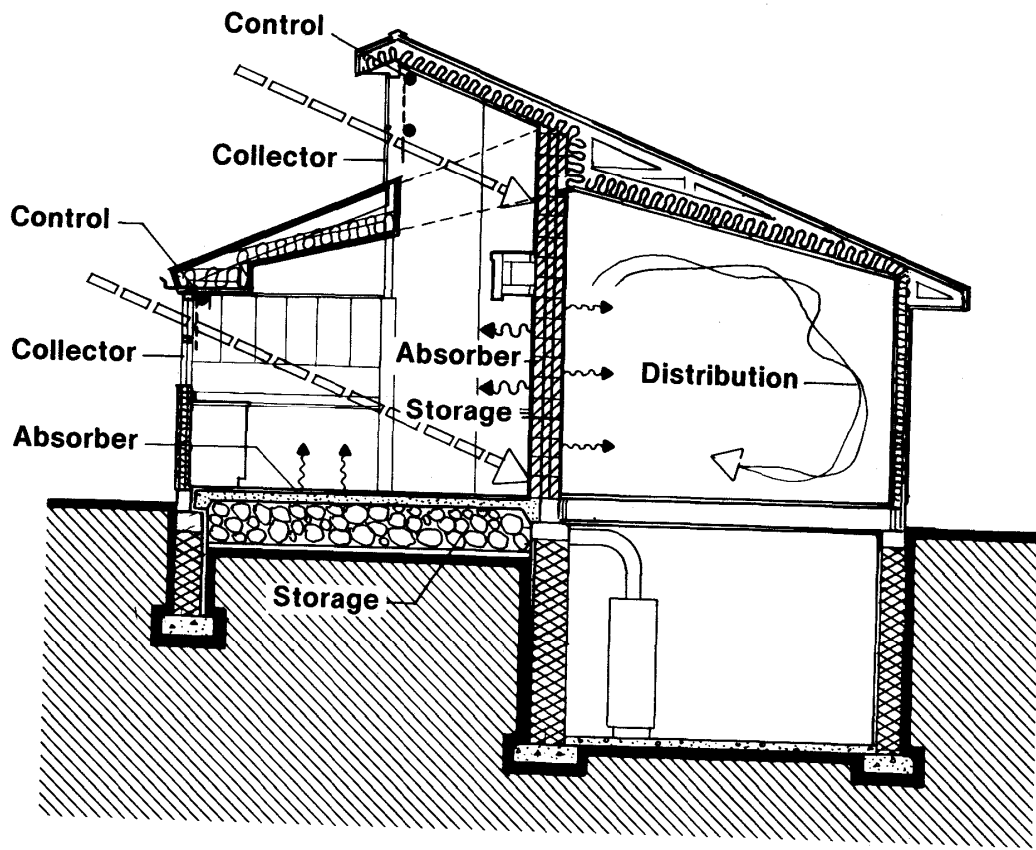
Back-up: Gas-fired boiler (62,000 BTU/H)

Passive Cooling Type: Natural and induced ventilation

This 2-story home, built in a model subdivision, shows that only minor changes from conventional planning and construction are needed to incorporate passive solar features. The garage and service rooms act to buffer winter winds from the northwest. Minimal openings on the north, east, and west walls, and a well-insulated and sealed building envelope all reduce the need for heat energy. A significant portion of these heat needs are met by a passive **collection** system that includes south-facing double glass, part of which makes up a direct passive system, with the remainder providing heat to bedrooms that have no storage mass. **Absorbers** for the direct system are the surfaces of the quarry tile floors and brick walls located in south-facing rooms.

Storage is in the concrete slab below the quarry tile and in the body of the thick brick wall. **Distribution** is primarily by radiation from these walls and floors with natural convection occurring as air comes in contact with these warm surfaces. Heat loss at night is **controlled** by using roll-down insulating shades over all glass.

Other features that save energy and contribute to comfort in the house include: an operable clerestory window in the living room to aid natural ventilation in the summer, a flue damper and a spark ignition on the furnace, water-saving shower heads and water closets, and an energy-efficient, air-circulating fireplace.



This plan is from the book
“Passive Solar Homes – 91 new award-winning, energy-conserving single-family homes”,
The U.S. Department of Housing and Urban Development, **1982**

The solar homes designs in this book were the winners of HUD’s fifth (and final) cycle of demonstration solar homes. The 91 winning home plans in the book were selected from 550 applications from builders.

This was a time of great interest and activity in the passive solar home designs – many of the winning homes show a level of innovation not found in most of today’s passive solar designs.

www.BuildItSolar.com

