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Solar Energy in Houston

Hot Options For Homeowners

SOLAR ENERGY

1. The Passive Solar House

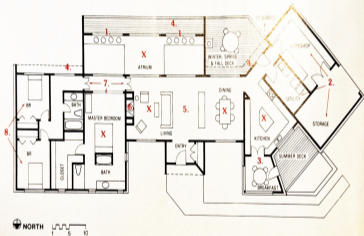
(This is the first of four solar houses featured in this story. The other three are described on pages 75-78.)

Architect and energy designers: Tackett Way Lodholz, Inc.
Builder: Mickler Construction, Inc.
Building cost: \$96,000
Location: Friendswood

Description: This passive-solar, three-bedroom, two-bath house was built to conform to Friendswood subdivision restrictions which require a detached garage at rear and 50-percent brick construction. The site is part of an old pecan orchard with street frontage to the northwest. The design includes 2,000 square feet of living space plus a 370-square-foot, south-facing solar atrium, part of

which the owners use for planting. Most solar atriums or attached solar greenhouses store the sun's heat in the floor, but this one stores it in eight 10-foot-tall, 18-inch-diameter, plastic water storage tubes during the winter months (an overhang protects it from summer sun), later radiating the heat into the house.

Designers Paul Lodholz, AIA, and George Way project 1980 heating and cooling costs to be around \$369, based on current Houston utility rates, with solar contributing about 60 percent of the heating load. Other design elements for this house are illustrated below.



X Ceiling fans.

1. Kelwall thermal mass storage tubes.
2. Minimum-use spaces, summer buffer.

3. This room can be closed off in winter.
4. Protective overhangs for summer sun.

5. Quarry tile for additional mass.
6. Heat-recirculating fireplace (has glass door and outside air supply).

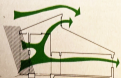
7. These 3 openings can be closed off for selective space conditioning.
8. These 2 bedrooms can be shut off.

■ Seasonal air circulation

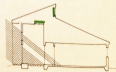
▨ Seasonal sun direction



SUMMER



SPRING / FALL



WINTER



Above: In the atrium, plastic tubes and quarry tile store the winter sun's heat, later radiating it into living areas.

Right: An overhang protects the south-facing atrium from summer sun. Pecan tree shades deck.



Passive solar systems are built into the design of a home so as to 'do it naturally.'