

Checklist for Passive Solar Building Design

The Sun Tempered House - No Cost / Low Cost Features

- Solar access: Pick a site with year round solar exposure
- Orient house to true south
- Pick a site, which buffers winter winds
- Design the East-West axis to be longer than the North-South axis
- Maximize south glazing depending on levels of thermal mass within the envelope
- Minimize north glazing, limit east and west glazing
- Design overhangs, shading devices and deciduous trees to permit deep solar penetration during the heating season, and solar protection during the cooling season
- Locate frequently utilized spaces (kitchen, living room) on the south side
- Locate less utilized spaces (closets, storage, garage, guest rooms) on the north side
- Provide for good passive heat transfer within the structure.
- Create thermally isolatable spaces and provide the ability to separately control zones.
- Utilize daylighting whenever possible to reduce lighting loads
- Utilize mirrors and light colored paints to make spaces easy to light.
- Liberal weather-strip and caulk the building envelope.
- Provide for natural ventilation options for summer cooling
- Design for future photovoltaic system and solar hot water system.
- Build only the size structure that you really need.
- Electrical: Install switched outlets in office, entertainment and work bench areas.
 - Minimize built-in phantom loads, such as series wiring outlets to a GFI.
 - Minimize dimmers. Provide switching choices to control lighting levels.
 - Choose light fixtures and systems to maximize lumens.
 - Choose light fixtures that can handle compact fluorescents.

The Passive Solar House - Moderate Initial Cost

- Thermal mass
- High insulation levels
- High R-value glazing
- Earth sheltering
- Air lock entries
- Thermal curtains
- Air to air heat exchangers
- Purchase energy efficient appliances, furnace and water heater.

Additional Renewable Energy Features - High Initial Cost

- Sunspaces
- Solar thermal system –space heating and domestic hot water
- Hot air collectors
- Photovoltaic system