



Home of Rick and Stephanie Ertel
205 Byas Springs Road
Mountain Home, Texas

This passive solar, off-grid home is built in a contemporary style using natural materials and finishes. Steve Lochte, Kerrville native and brother to Stephanie, is the architect who designed the home according to the philosophy of *The Not So Big House* by Susan Susanka. He is the President of [Brand+Allen Architects](#) of San Francisco, CA and Houston, TX. [Sierra Homes](#) of Fredericksburg, Texas is the builder.

The 2,045 square foot home is one story, with all rooms on the same level. The exterior is stucco, with aluminum clad Marvin windows and French doors. The standing seam Galvalume roof is finished with rain gutters and PVC downspouts painted to match the roof. Large Ashe Juniper pillars support the entry porch, pergola over the south deck, and the west screened porch. The fascia trim is rough cedar; the south deck is rough cedar and composite lumber.

The interior finish is American Clay plaster except for the kitchen and bathrooms which are textured and painted with Sherwin Williams low VOC paint. The built-in cabinets, bookshelves, window seats and Murphy bed cabinet were built by James Salter of pecan with a clear finish. The floors in the stone entry and west silo are flagstone, and a massive dry-stack limestone wall divides the kitchen from the living area.

The spaces in the home include: Entry, Living Area, Dining Area, Piano Alcove, Entertainment Area, Kitchen, Quiet Room/Library, Master Bedroom, Guest Bedroom, Master Bath, Half Bath, Vestibule and Screened Porch.

The [U.S. Green Building Council](#) gave this home a LEED Platinum rating, and it was given the highest rating, 5 Stars, by [Austin Energy](#). Both these awards recognize the energy efficiency of the home and its construction.

Energy efficiency begins with the wall construction, which used Nudura ICF blocks filled with concrete for the exterior walls, and Demilac foam insulation in the ceilings and stud walls of the two 20 foot silos. The

home has many windows and French doors for natural daylighting; the insulated windows use low-e glass to reduce solar heating in the summer.

All lighting fixtures are Energy Star rated except basic lighting in the baths and the parking structure, which use fluorescent bulbs.

Site selection is key to the passive solar design of the home. The longer axis of the home runs due east to west. The high living area wall, with most of the windows in the home, faces south. In winter, the sun is allowed to enter and warm the home, reducing the need for energy for heat. In summer, roof overhangs, louvers and vines on the pergola over the south deck keep the sun out of the home. There is only one window in the west wall of the home to protect the interior from the west sun. The home sits below the crest of the hill on the north side of the site to reduce the impact of north winds in winter. Supplemental heat is provided by wood burning stoves.

Power comes from the photovoltaic array and batteries located on and in a parking structure about 200 feet from the home. The solar panels for hot water are located at ground level below the south deck. Placing these energy sources away from the home maximizes their sun exposure while allowing the roof of the home to be shaded from the summer sun.

This home does not have an HVAC system. It relies on natural ventilation, insulation in the roof, clay plaster, and solar mass in the walls, floor and central stone wall to maintain a comfortable temperature and humidity level. The prevailing breeze from the Southeast keeps the porches comfortable. The two 20 foot silos serve as chimneys to remove hot air from the interior of the house, letting it out through the high windows and operable skylight. The windows on the north side of the house are higher than those on the south side, and all the windows are casement style to enhance the natural ventilation. The outdoor shower outside the master closet and the outdoor kitchen on the east porch serve to keep heat and humidity out of the home during warm weather.

Other green materials used in construction include Enviroglas countertops, reclaimed antique doors, and reclaimed longleaf pine ceilings. The cooking stove and the outdoor grill are wood-burning. The home and the parking structure are equipped with air terminals (lightning rods).

Rainwater catchment and a 20,000 gallon Pioneer tank are the home's water supply. A low power pump and pressure tank move the water to the house after it has been filtered and exposed to ultraviolet light. Composting toilets reduce water usage. Kitchen and bath water are recycled through a gray water tank for landscape irrigation. Faucets and shower heads are extra-low flow, and the clothes washer is a front-loading Energy Star rated model. The stone retaining wall on the north side of the house directs surface water to the native Lacey Oaks, Shin Oaks and Live Oaks on the site. There is no turf grass on the site, and the Ashe Juniper has been reduced.

Other design features include the custom curved Mexican Cedar doors to the Quiet Room; Murphy bed in the guest bedroom to allow alternative use for the room; pocket doors in the bath area to isolate the single shower as part of the master bath or make the half bath into a guest bath; the shoe nook near the back door to limit dirt and dust; the large widow seat in the living area that makes two single beds; lever handles on doors, grab bar in shower and wall hung lavatory in half bath to accommodate persons with limited mobility or other disabilities.