

Johnston Residence 2005

Profile Project: 4,500 Square Ft. home on 7-acres with a well and pool.

Property: Valley Center, California



Project Origination: Client Referral

Initial Response: Performed comprehensive energy analysis

Recommended Actions:

This project was a ground up new construction project in an area that gets 105 – 110 degree temperatures during the summer. The client who expressed a desire to construct an energy efficient sustainable home contacted me.

Energy Analysis:

I visited them and I reviewed their plans, I made recommendations to shade windows with over hangs, which were incorporated into the plans, the house has a 10' deck overhang surrounding the home. I obtained 12 months of their current electric bill to understand their habits and current usage. They were currently living in Carlsbad, California; a coastal community.

I projected the loads with efficiency offsets and added the well and an efficient pool system and solar hot water for the pool. I concluded that the home should zero net at 6-kWh Solar PV tracking system incorporated into our plans was two Silent Aire™ Horizontal Axis Night Ventilation System.

The roof was designed with an excess and tail vents due to the high summer temperatures and a darker roof design for aesthetics. The roof was equipped with two T-stat controlled power vents. Two high seer 5-ton AC Units were installed for back-up.

Appliances: All Energy Star appliances were incorporated in the plans.

Lighting:

A high efficiency compact florescent lighting system was designed and installed indoors and outdoors for general lighting. Low voltage architectural lighting was installed in the living room, dining room, and in two hallways that are used as Galleries for family photos. The low wattage 32-watt IR Low Voltage lamps were installed. These lights will be changed in the future to LED to help save more energy.

Water:

A tank less propane gas water heater was installed all low flow showerheads, faucets, and toilets were installed. A high efficiency variable speed well pump was installed.

I consulted with Mr. Johnston on installing Xeroscape low impact landscape, composting, night watering, etc.

Summary:

The house was completed in November 2005. The first anniversary of the Solar PV System was November 2006; we made a video at a house warming party. The summer was a record breaker with temperatures for several months over 110 degrees, peaking at 118 degrees. The Johnston's only used their AC units 10 times the Silent Aire™ worked extremely well they were very comfortable and we had a net electricity surplus of \$200.00 for the year. A video treatment of our work at this residence is available at <http://www.marksnyderelectric.com/johnstonresidence.htm>