

# ECOLOGICAL SPECIFICATIONS

### **Regenerative Design:**

Myra House was designed and built by putting into ecological principles that creates a healthy living place of spiritually satisfying, biologically healing, environmentally sustainable, and economically feasible. The following regenerative systems address air, water, food, and energy:

#### Air

-Provide a wind row of trees on the west side of the house to create afternoon shade and shelter from the wind. These also produce oxygen, absorb carbon dioxide and filter air moving across the site.

-Place a solarium greenhouse in the breezeway to condition air for the living spaces.

-Provide wood and plastic composite (Trex Easy Care Decking) shields from moisture and insect damage as well as UV damage. It provides a cool air tunnel during the summer and warm air tunnel during the winter.

#### Water

-Place three detention ponds (Aquascape 9500 Pump, Grand 2 Skimmer with Biofalls Aquascape Pump, Large Skimmer Mini Biofalls) on the property to capture rainwater to use for a drip irrigation system in the permaculture gardens.

-Maintain the level of the detention pond and dissipate the chlorine before the water is used for irrigation, adding potable water to the pond.

-Make extensive use of mulch to conserve soil moisture.

-Maintain the connection to Southern California Water Company to provide potable water for the house, adding a GE SmartWater filter in the kitchen refrigerator's drinking water to eliminate the chlorine.

-Reuse collected wastewater from the house in a cistern tank (Liberty Pump, 60 gal/min-4/10 HP) and use for the subsurface irrigation of fruit trees. 12 Mini-leach fields are provided by hard plumbing to each empty 1 gal plastic pot covered with stepping stones that allows access for clean-up.

-Install a Magnetic Fluid Treatment System (GMX System) that causes water to simply retain minerals and lessen hard water type problems which cause clogged water pipes, decrease water pressure and water heater efficiency.

#### Food

-Establish fruit tress and vegetables on the property using gray water in the pond. They provide fresh fruit and vegetables throughout the year.

-Develop aquaculture in the detention pond to grow fish and use the nutrient rich water for permaculture. Fish contribute to the nitrogen cycle which is needed for healthy, multiplying plants and floating plants: Water Hyacinth, Oxygenator, Waterlilies of Red, Pink, and Yellow

-Establish permaculture gardens using intensive gardening techniques to grow food on a year-round basis.

-Set up composting to renew the soil on a continuous basis using cuttings from the garden and kitchen scraps.

-Use the Solarium's greenhouse to start plants that can then be set out in the garden as well as frey (small fish) that can be put into the aquaculture pond.

-Place small animals such as chickens or ducks on the property to help digest organic matter, condition the soil, and provide another source of protein.

## Energy

—Install 18 Photowatt 100 watt photovoltaic module-25 year manufacturer's warranty with the inverter (Trace Sun Tie Inverter –2 year manufacturer's warranty), which converts solar electric power into utility grade electricity which can be used by home or sold to the power company. Rebate \$6,853.50 is granted for a 1,523 Watt from California Energy Commission by Energizing Renewable Buydown Program. \*Horizontal surfaces receive approximately 10-kilowatt hours per square meter of solar energy on a sunny day in California.

—Use of energy efficient lighting bulb: using 7W (Closet and storage), 13W (low ceiling and Desk lamp), 18W (high ceiling) screw-in compact fluorescent lamps (CFLs) which generally reduce energy consumption by about 80% with brightness of 500% and eight times longer lamp life. Out door lighting: Combine both 3 W-CFL and 15 W Incandescent lamps and 13 W –CFL for wall bracket.

#### For Energy Conscious Heating/ Cooling system

-Install 2x6 stud wall and add insulation (R-11 for the wall and R-30 for the roofs).

-Install dual-pane argon-filled glass and low-E coatings around the windows and French doors (Marvin Integrity Windows and Clad Siding French Doors).

-Provide solar access where possible on the south of the buildings to let in low angle sunlight to heat interior space in the winter.

-Include high thermal floor tile (Mexican Satio Tile) and wall plaster that have high thermal mass to retain heat in the winter and coolness in the summer.

-Provide shade on west and north facing windows to prevent low angle sun from entering during the afternoon in the summer.

-Provide local heating fixtures in case of cold weather condition: Living Room with wood-burning Fireplace, Kitchen with Cast Iron Gas Stove (Heat-N-Glo Vienna II), Library with built-in gas fireplace (Superior D600).

-Provide natural cross ventilation from North (Living Room) to South (Library), from West (Guest space) to East (Main Living space) to permit the cold air drifting from the mountains side (north) and Ocean side (west) to move through the living spaces at night during the summer.

-Draw air from the Solarium greenhouse/ breezeway to naturally pre-heating air in the winter or cooling air in the summer for distribution naturally or through the force air units (5 ton & 3 ton-Gas Furnace and Tappan 2 ton Fan Coil Unit and Heat Pump Condenser) if necessary.

-Install Solar Hot Water Heating Tank (SunEarth Copperheart Model CP-40) to pre-heat water for baths, showers and washing dishes working with Gas Water Heater (GE 50gal Energy Saver).

-Kitchen Appliances:

Barbecue: Fire Magic Delux Drop-In Gas Grill

Cooking: Gas Cooktop with 4 Sealed Burners (Kitchenaid 30-Inch) and built-in Electric Double Oven (Whirl-pool 27")