Sustainable Design for Saguaro National Park Village

Project by:
Design Elements
Location and Design for Village

- Guest Houses
- Conveint Road
- Garden
- Solar Car Recharging Lot
- Guest Houses
Transportation

- Chevy Equinox
- Electric XebraXero car
Home Design

• Dome
  — Natural Plants
• South facing windows
  — Canopy for cooling
• Earth tubes
• Thick Walls
  — Rastra blocks
• Solar Panels on top
Home Design (cont.)

- Solatube
Home Design (cont.)
Cooling and Heating

- Earth tubes
- Thick Walls
  - Extra insulation
  - Rastra blocks
- Solar Panels on top
Earth Tubes
Energy Sources

• AVG 29.2 kWh/day per home
• These homes ~ 25 kWh/day per home
• 1 sq. meter solar panel = 5 kw of energy per hour
• Amount of needed solar panels – 5, 1 sq. meter panels

According to the 2006 Department of Energy Report
Conservation

• Organic Matter

• Inorganic Matter
  – Recycling
  – Weekly pick up
Food and Water

• Cisterns are placed in low-lying areas

• Rain water collection
Wildlife Concerns

• Displacement
  – cacti, ocotillo, and creosote in the lower elevations
  – Animals
    • Burrowing
    • Insects
    • Natural Selection

• Blackout blinds
Food and Water (cont.)

• Garden
  – Greenhouse
  – Because new species of plants are being introduced to desert conditions, greenhouse will be used to control temp. and moisture

• Protein
  – Beans
Utilities

• Sun Table
  – Recharges batteries

• Solar Lampion

• Samsung RM257AC

• Xiamen Hi-Light Lighting Co. Ltd. Hi-Light
Utilities (cont.)

• GE electric cooktop
  – Pan sensor