

A photograph of a desert landscape in Saguaro National Park. The scene is filled with various types of cacti, including tall, columnar saguaros and smaller cholla. The ground is covered with dry, yellowish-brown vegetation. In the background, there are rolling hills under a sky with scattered white clouds. The overall lighting is bright, suggesting a sunny day.

Sustainable Design for Saguaro National Park Village

Project by:



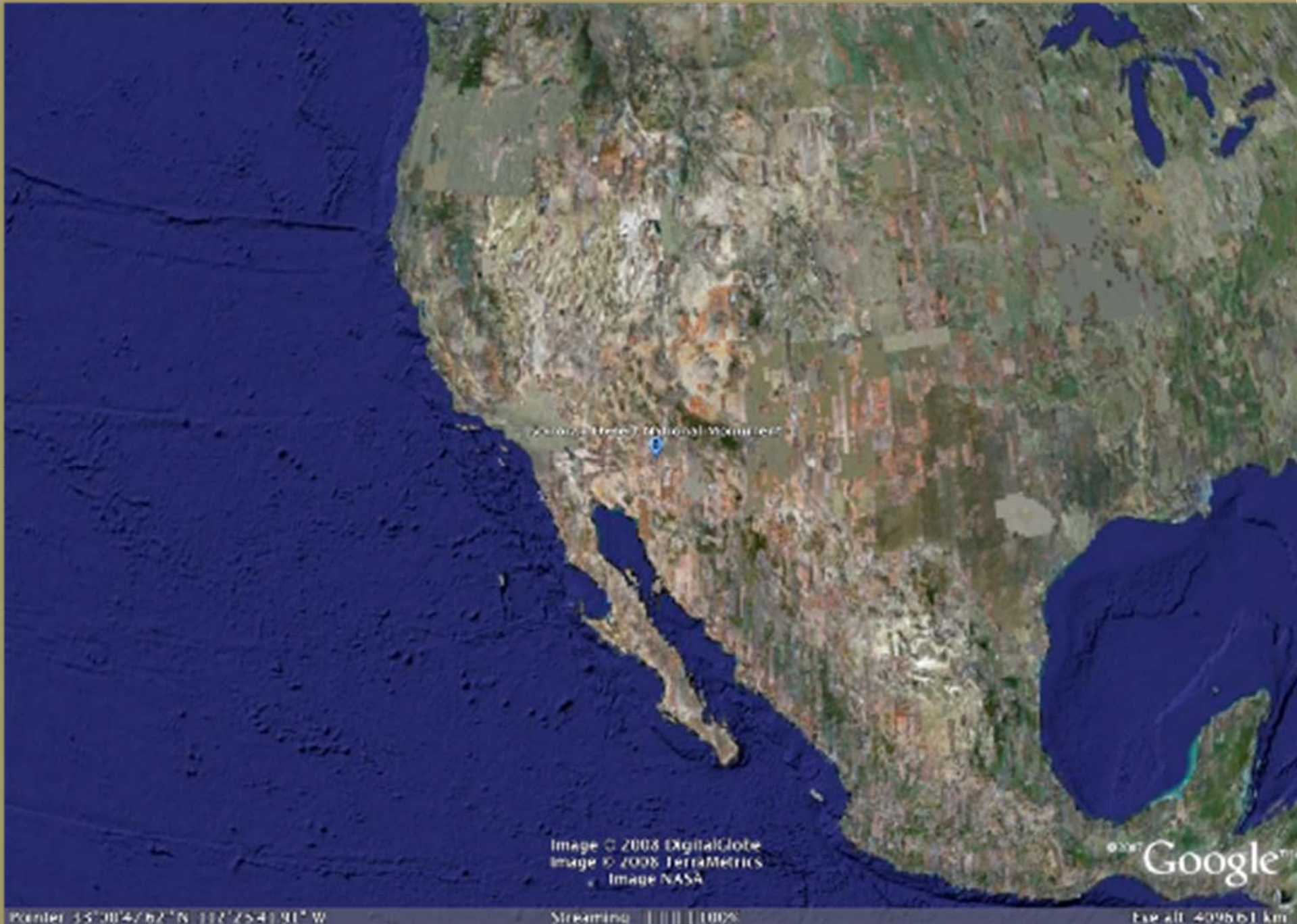
Image © 2008 TerraMetrics
Image NASA

©2007 Google™

Center: 33°00'47.62" N 112°25'41.91" W

Streaming: ||||| 100%

Eye alt: 17705.30 km



Colorado Plateau National Monument

Image © 2008 DigitalGlobe
Image © 2008 TerraMetrics
Image NASA

© 2007 Google™

Pointer: 35°00'47.62" N 112°25'41.91" W

Streaming | ||| | 100%

Eye alt: 409661 km

Sonoran Desert National Monument



Image © 2008 DigitalGlobe
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Image © 2008
Image © 2008

Google

Center: 33°04'26.2"N 112°25'41.91"W

Streaming: 1/01 | 100%

Page 0/0 | 1185.17 Km



Mojave Desert National Monument



Image © 2016 Mapbox
Image © 2016 TerraMetrics

Google

Center: 35° 01' 45.67" N 117° 05' 40.00" W

Streaming 100%

Scale: 1:5575.411

Sonoran Desert National Monument



Image © 2015 DigitalGlobe

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Sonoran Desert National Monument



Image © 2005 DigitalGlobe

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Center: 35°01'47.62" N 112°25'41.00" W

Zooming: [| | |] 100%

Eye alt: 622 km

Sonoran Desert National Monument



Image © 2008 DigitalGlobe

Google

Center: 33°04'06.8" N 112°25'41.91" W

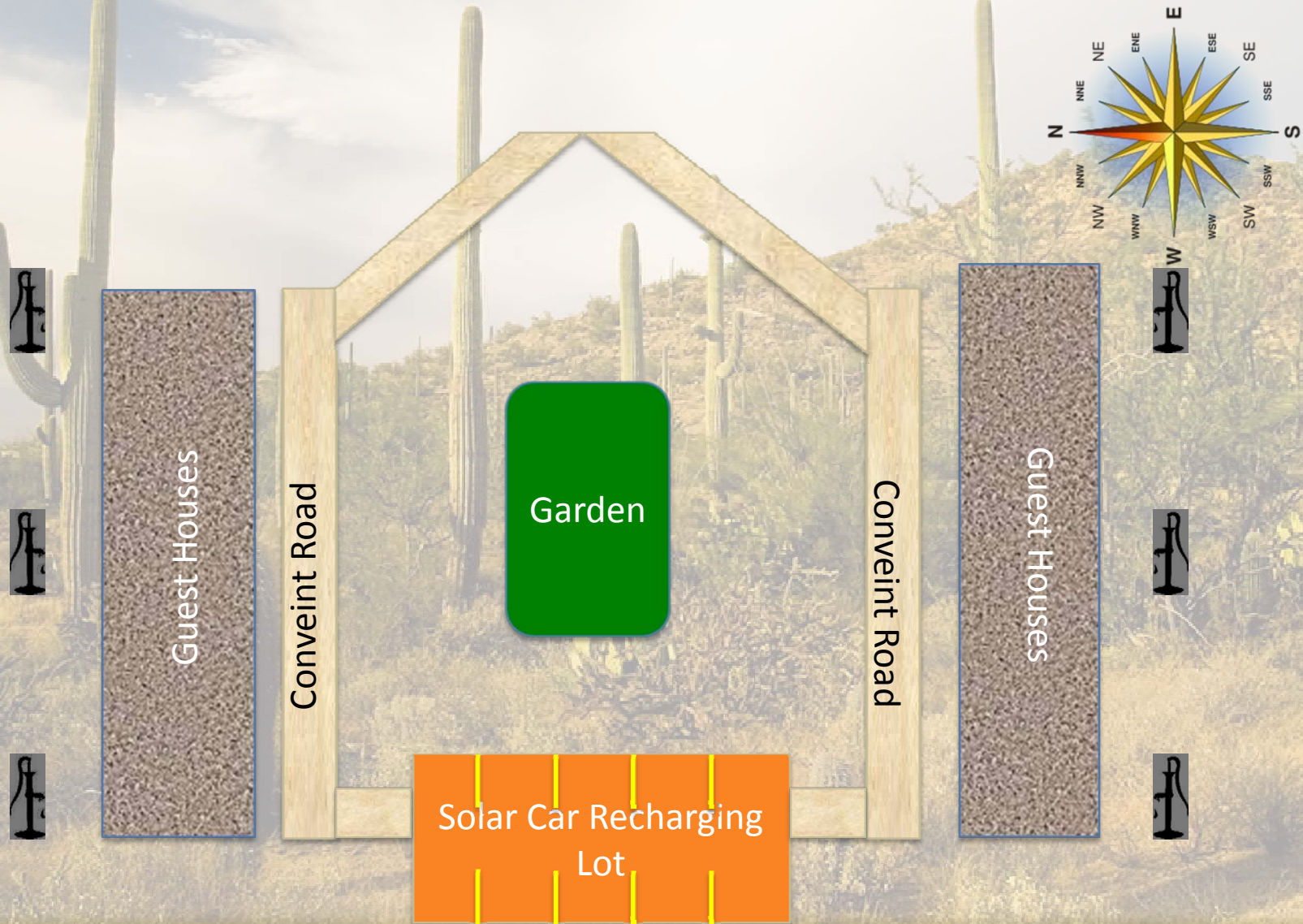
Streaming 100%

Eye alt: 0.46 km

A photograph of a desert landscape featuring several tall saguaro cacti and various shrubs. The sky is blue with scattered white clouds. The text "Design Elements" is overlaid in the center in a green, sans-serif font.

Design Elements

Location and Design for Village



Transportation

- Chevy Equinox
- Electric XebraXero car



Home Design

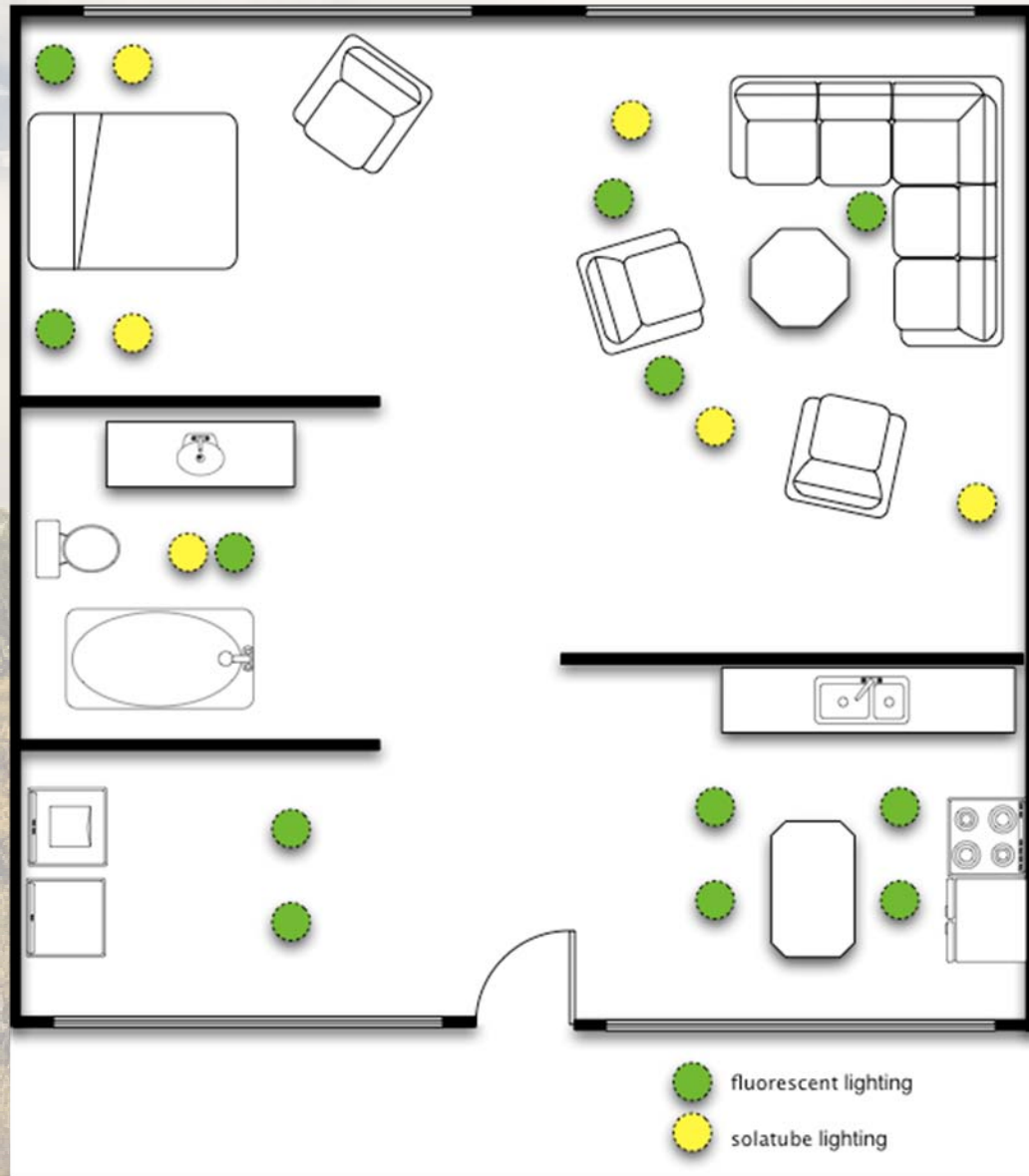
- Dome
 - Natural Plants
- South facing windows
 - Canopy for cooling
- Earth tubes
- Thick Walls
 - Rastra blocks
- Solar Panels on top

Home Design (cont.)

- Solatube



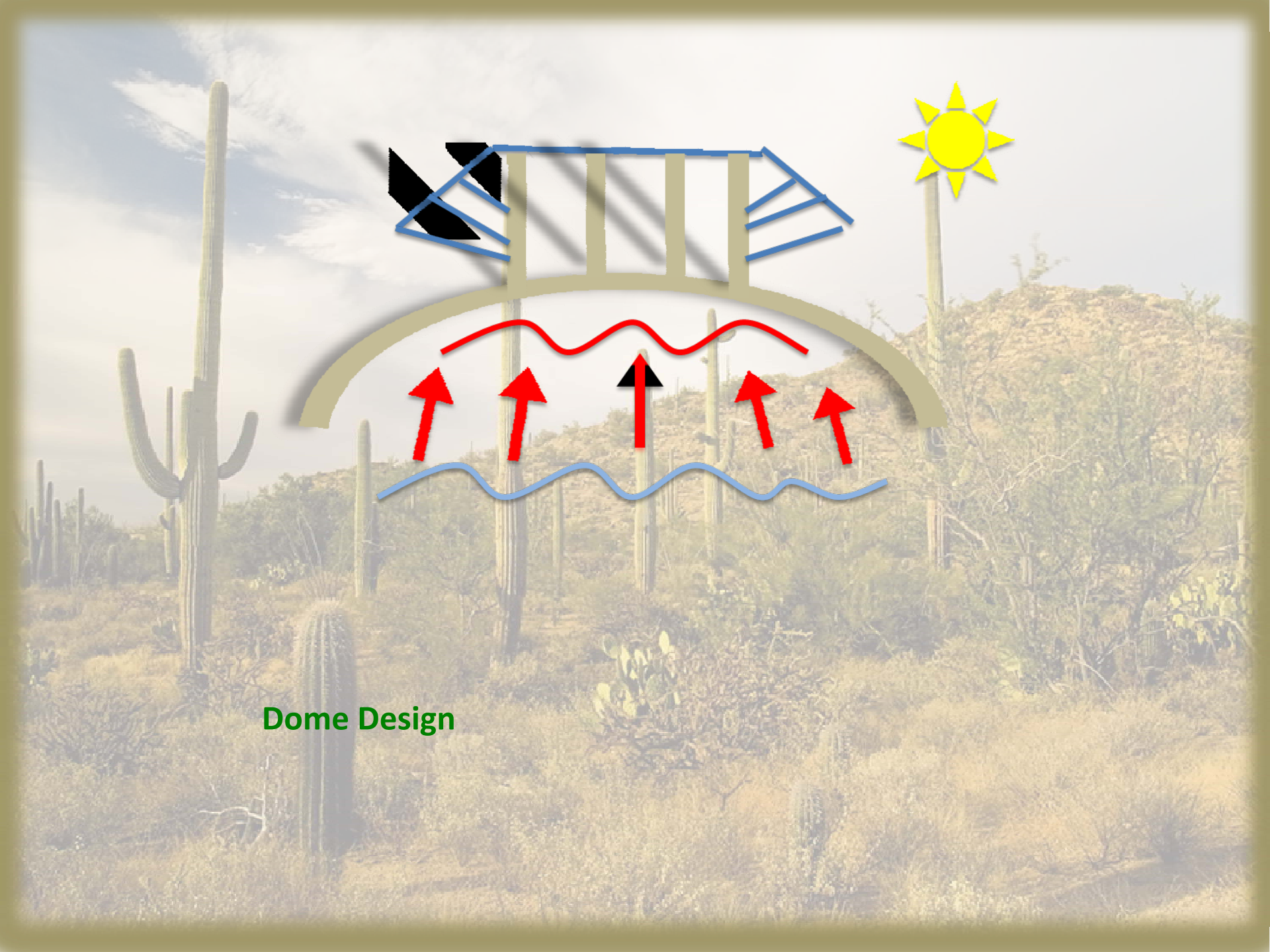
Home Design (cont.)



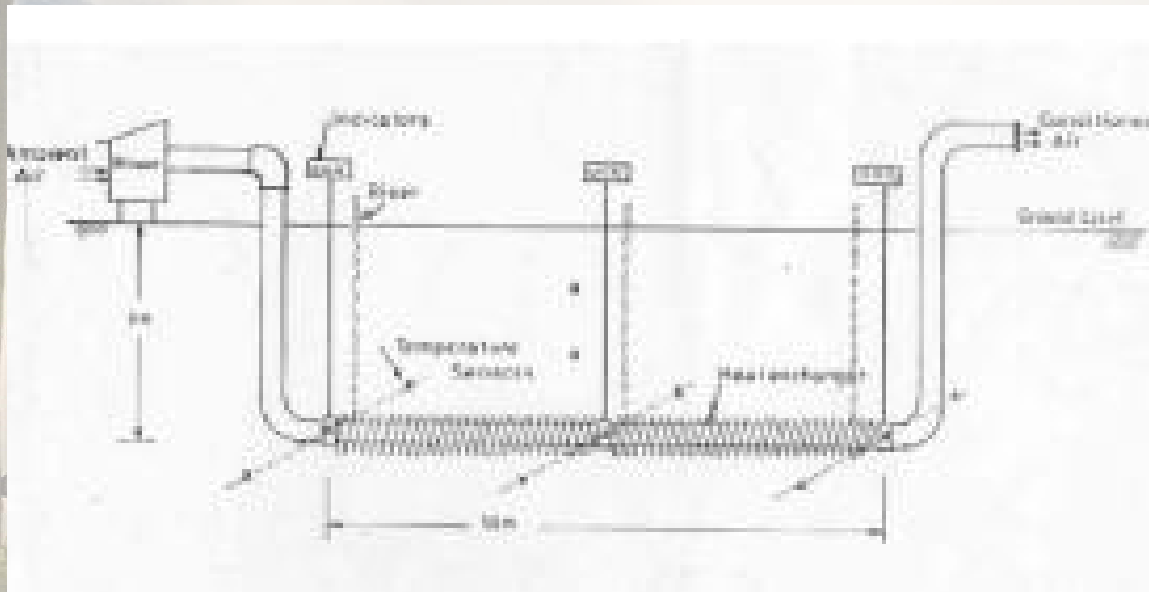
Cooling and Heating

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





Dome Design



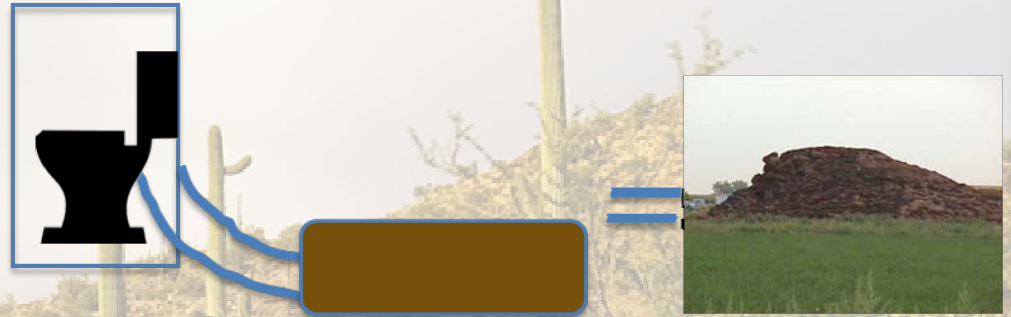
Earth Tubes

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

Conservation

- Organic Matter
- Inorganic Matter
 - Recycling
 - Weekly pick up



Food and Water

- Cisterns are placed in low-lying areas



- Rain water collection



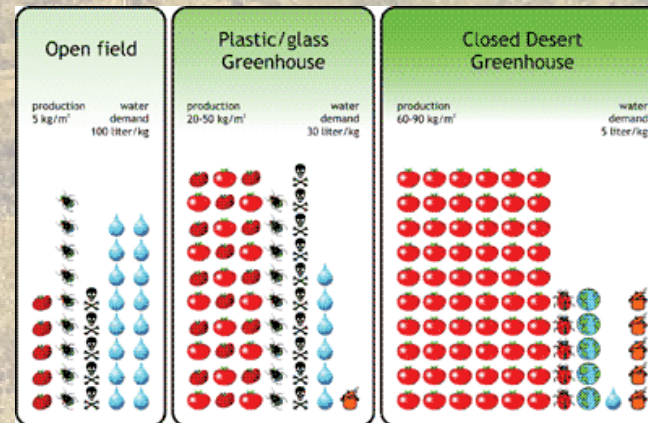
Wildlife Concerns

- 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



