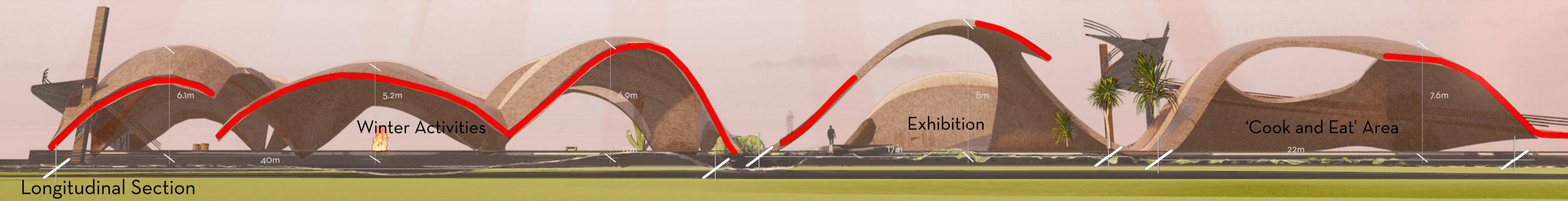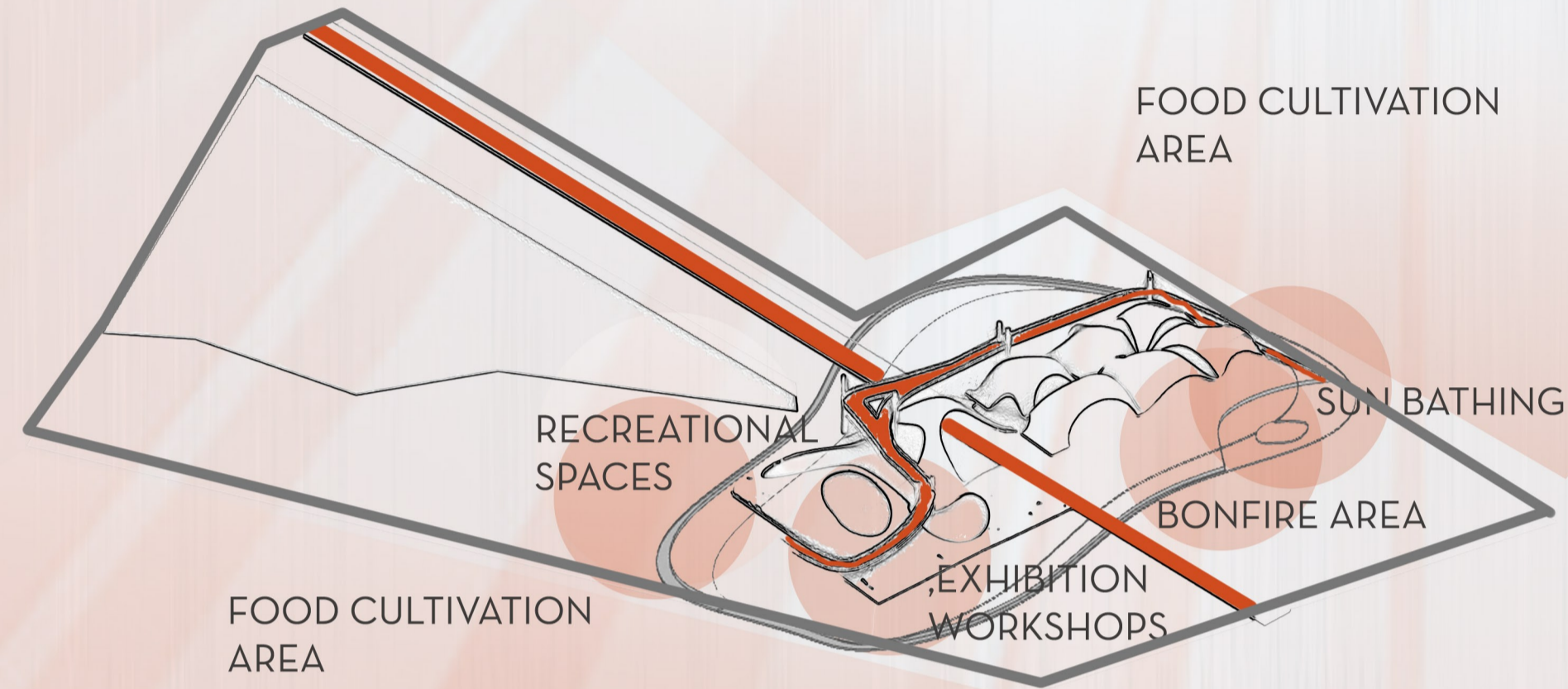# LOW-TECH MEETS HIGH-TECH

Soil is the most basic and humble construction material. There cannot be anything more sustainable than using what is right under our feet. Earth will ideally be sourced from the very site and then converted to compressed, stabilized earth blocks. From this, a set of catenary vaults will be created by our team. This is a very old technique in vernacular architectural traditions across the world.

Attached to roughly half of the south facing surfaces of the doubly curving vaults will be a flexible film of advance photovoltaic-cells. This is a coming together of two very different kind of material cultures.
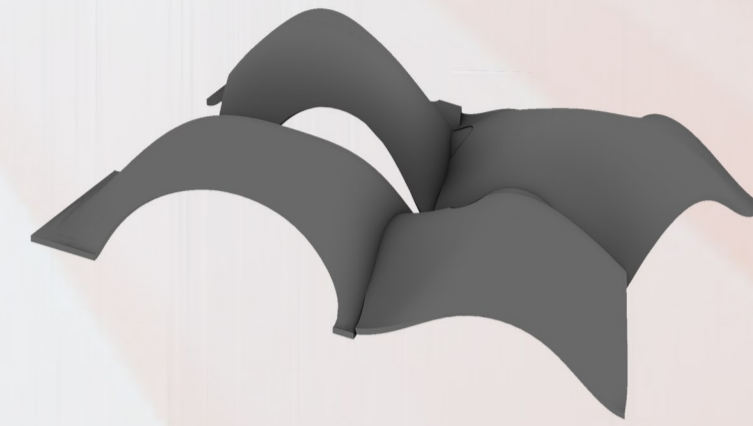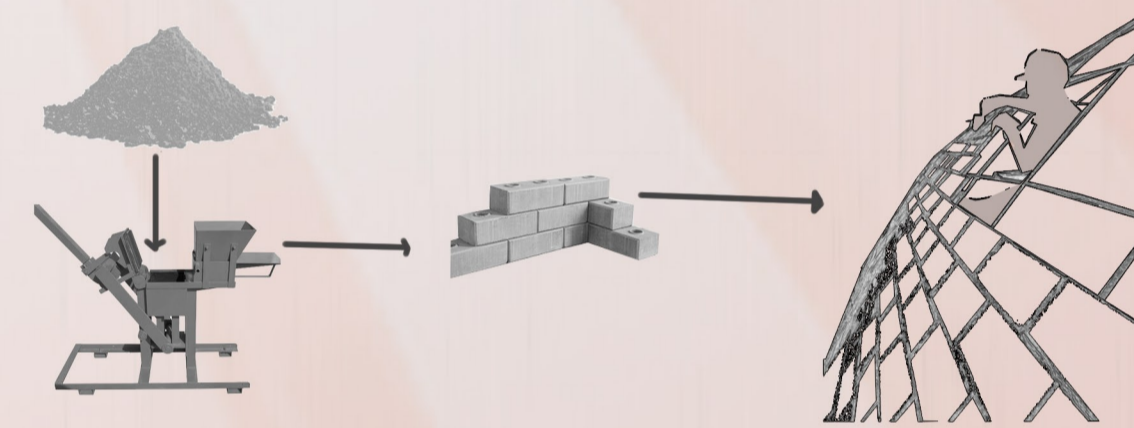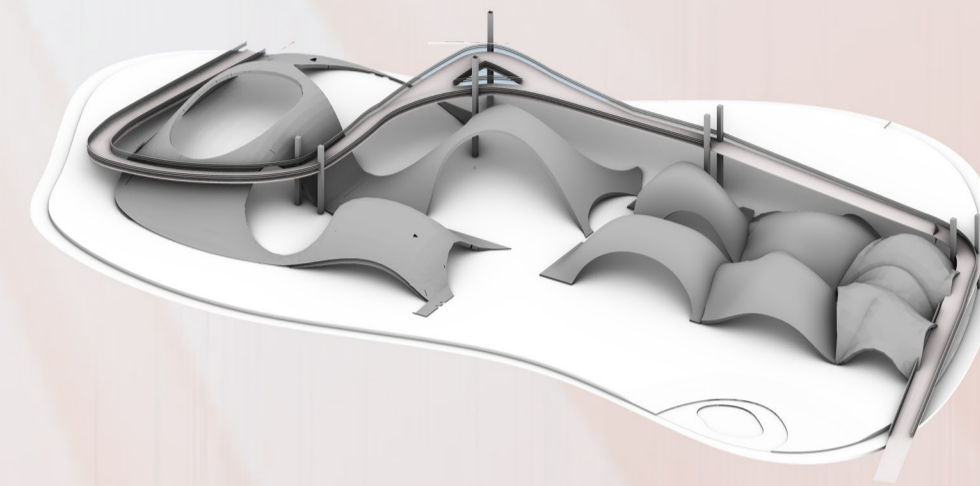
ZONING

FOOD CULTIVATION AREA

RECREATIONAL SPACES

SUN BATHING

BONFIRE AREA

EXHIBITION WORKSHOPS

FOOD CULTIVATION AREA

CONSTRUCTION TECHNIQUE

N

Thin Film of Organic Photovolaic Cells over south facade

Compressed Stabilised Earth Blocks

Earth Block Construction

6.1m   5.2m   6.2m   8m   7.6m

Winter Activities   Exhibition   'Cook and Eat' Area

40m   17m   22m

Longitudinal Section
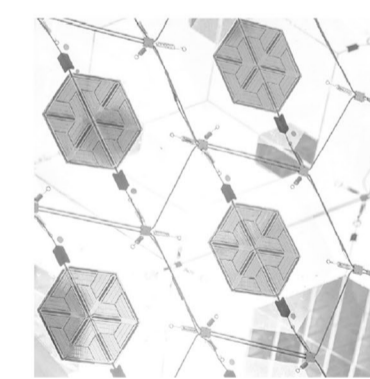
Piezoelectric Bridge

The piezoelectric wooden bridge generates electricity when people walk over it. The wood is accounted to produce one twentieth of the piezoelectric power to quartz. The bridge harvests energy when people walk, jump or dance on it.

Organic Photovoltaic cells

OPV (also known as OSC for organic solar cell) uses organic polymers to absorb sunlight and transmit electrical charges. These are rolled onto the southern side of the structure. Attached to roughly half of the south facing surfaces of the doubly curving vaults will be a flexible film of advanced photovoltaic-cells. This is therefore a coming together of two very different kinds of material culture / languages. We estimate that the 12,636 Sq.ft of South, South-East and South-West facing vaulted surface can accommodate roughly a **188 kWp** solar panel system. This will produce approximately 320,755 kilo-Watt hours of electricity every year.

Architectural Precidents

Vaults and construction techniques of architects like Eladio Dieste, Antonio Gaudi were studied to understand the limits of such structures. These architects are known for blending their designs in nature with a contemporary twist.
The vernacular adobe construction techniques of Nevada are reflected in the design

Architecture by Eladio Dieste

Architecture by Eladio Dieste

188 kWp solar panel system
320,755 kilo-Watt hours of electricity every hour
Monetary saving- **35000 USD**