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GENERAL

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HIGH QUALITY

LIGHTWEIGHT & CHEAP & FAST BUILD

GENERAL
The high risk of earthquake areas is widely spread all over the world, especially Mediterranean, Middle East, west part of China, Japan and west coast of South America. But the time of the earthquake is unpredictable.
World map of Koppen-Geiger climate classification with earthquake

Peel, M. C. and Finlayson, B. L. and McMahon, T. A. (2007) (University of Melbourne)

Vectorization by: Ali Zifan
VERNACULAR ARCHITECTURES
Use soil as **thermal mass** and **thermal insulation**:

Dwelling underground by using soil and rock as **thermal mass**.
Domed roof with opening on top brings heat away as wind chimney;

Using favorable wind for ventilation by wind catcher
Recycle building material from old buildings to make new unit;
Weave the building mass close enough to create shading for outdoor activities in hot summer, and protect people from strong wind.

- Use soil as thermal mass and thermal insulation;
- Flat roof make building flexible and possible for further adding
- Using courtyards to create microclimate for ventilation and buffering the building temperature;
- Growing plants create more shading and fresh air

picture from “A Shelter Sketchbook”
TRADITIONAL CLIMATE PRINCIPLES
PRINCIPLES IN MODERN WAY

- THERMAL MASS
- PHASE CHANGING MATERIALS
- PUBLIC SHADING
  picture from
  “A Shelter Sketchbook”
- EASY ADDING
- WIND CATCHER
- MICROCLIMATE
- PLANT SHADING
- WIND CHIMNEY
- MATERIAL REUSE
CONCEPT DESIGN
ORIGINAL CONCEPT
prefabricated materials + nature materials
general use
mass produced
construction easily

VS

on-site available
less transportation
sustainable
free

ROOF TYPOLOGY
CLIMATE CONCEPT

SUMMER DAY

SUMMER NIGHT

WINTER ELECTRONIC HEATER

WINTER STOVE HEATER
PCMs

SUMMER DAY

Thermal mass

SUMMER NIGHT

PCMs

Thermal mass

THERMAL MASS

THERMAL MASS

THERMAL MASS

PHASE CHANGING MATERIALS

℃

time

℃

time

℃

time

℃

time
REGULATION
FAMILY
4-6 persons

18 sqm.

3.5-5.5 sqm.

45 sqm.

225 sqm.
COMMUNITY
16 families
REGULATION → REALITY
Date: 09-08-2017  
Epicenter: Jinghe  
Magnitude: 6.6  
Largest City nearby: Bolo  
Distance from epicenter: 70km  
Pupulation: 263682
UNHCR REGULATION

MAXIMUM
3.6 sqm/person

APPROPRIATE
4.5 sqm/person

COMFORTABLE
6 sqm/person

IDEAL
9 sqm/person

LUXURY
18 sqm/person
MAXIMUM
3.6 sqm/person

APPROPRIATE
4.5 sqm/person

COMFORTABLE
6 sqm/person

IDEAL
9 sqm/person

LUXURY
18 sqm/person

UPGRADE
Choose a color for your interior wall: ________________________________

Choose a color for your exterior wall: ________________________________

Choose the add-ons of your opening (two for each window/door):

- viewing window
- ventilator
- power interface
- pet door
- stove outlet

Amount of door and window

- Fill-in this form and get your extra SHELL-T
- You can choose your own preference of your extra unit component, by marking the quantity of the unit component in the square near the illustration
- Each form offers one unit, if you decide to rent two units, please fill-in two forms

FILL-IN THIS FORM AND BUY YOUR OWN FURNITURES;
- You can choose your own preference of your extra furniture by filling the quantity and color (if applicable) in the square below the illustration;
MATERIALS & DETAILS
SOIL

SAND

MIXED

Local natural materials
2 Prefabricated materials

- ALUMINUM
- POLYCARBONATE
- STEEL PANEL
- WOOD
- FABRIC
- BOLTS & NUTS
CORRUGATED PANEL

24 sets

470kg

€200
ALUMINUM EXTRUSION U&I
CANVAS FABRIC ROOF
& INSULATION & PCM LAYER

50kg
Canvas €260,
Insulation €920,
PCM €1250

64 sets
OPENING
RODECA Window Series 85 + Plywood Frame

190kg

€400

78 sets
VENTILATION
PLUG-IN
PET DOOR
STOVE PIPE
RING-DOME
ROOFTOP
DOOR-RING
DOOR-WALL
CONSTRUCTION MANUAL
THANKS