

MILD HOME AND ECO GREEN VILLAGE COMPETITION OF IDEAS

COMPETITIA DE IDEI MILD HOME AND ECO GREEN VILLAGE

My Modular, Intelligent, Low cost, Do it yourself nearly zero energy House for our Eco Green Village



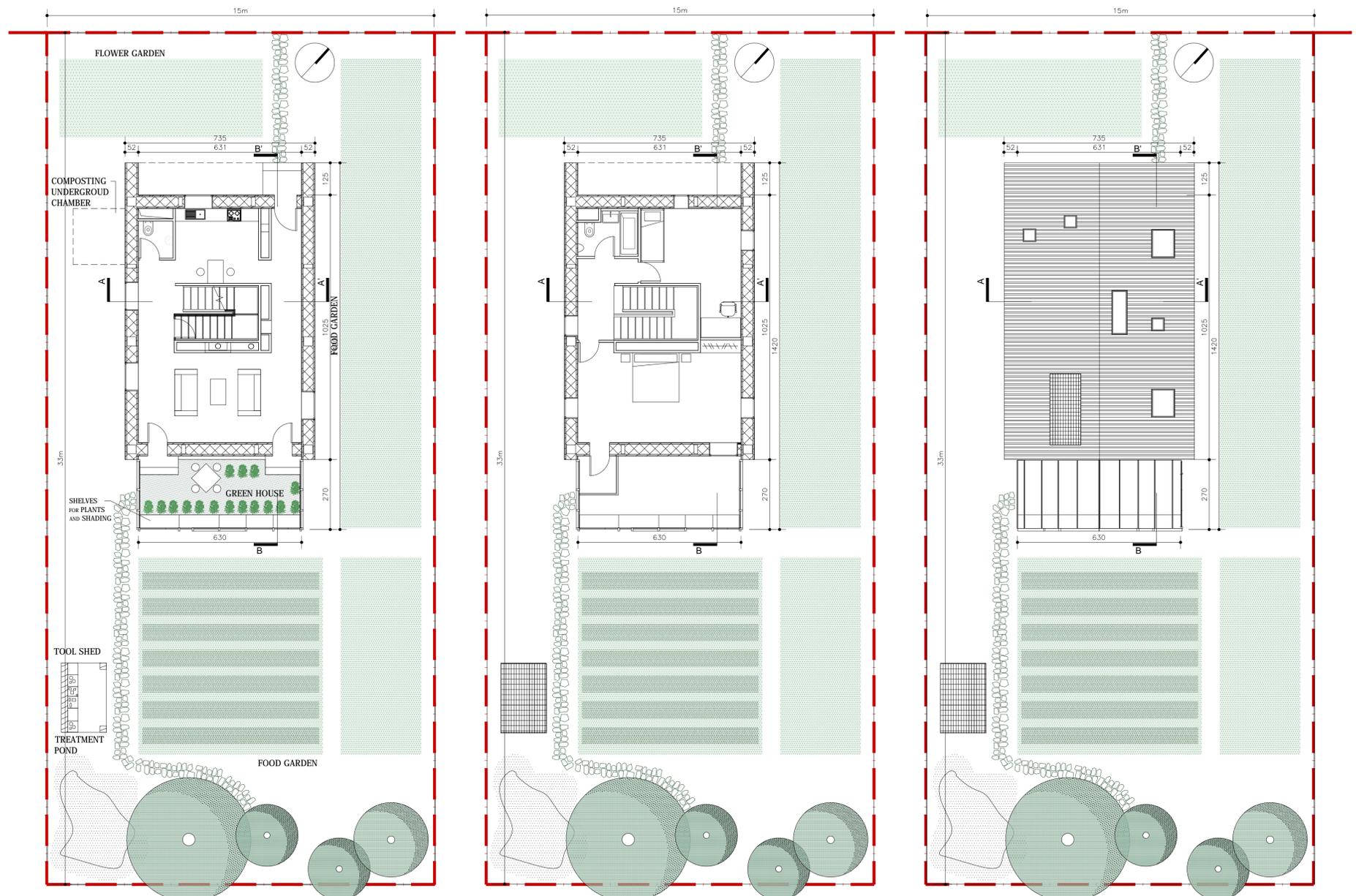
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North-West facade scale 1/100

South-West facade scale 1/100

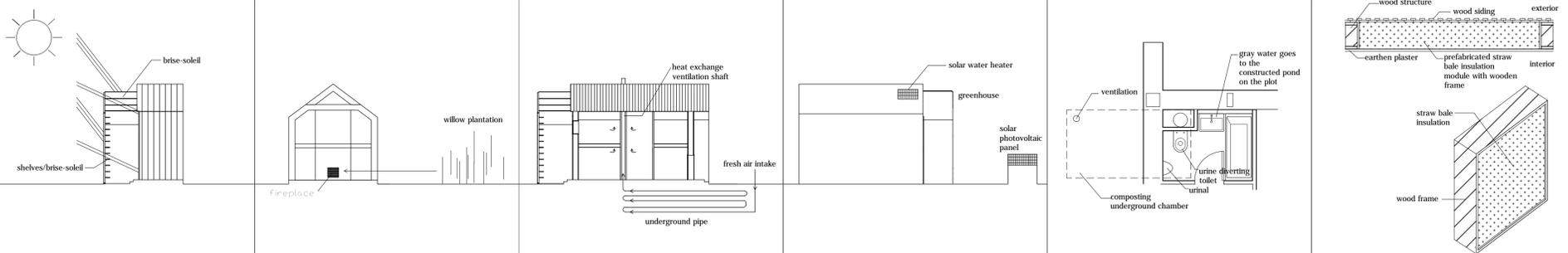
North-East facade scale 1/100



Ground floor plan scale 1/100

First floor plan scale 1/100

Roof plan scale 1/100



The greenhouse stores the solar heat. Excessive heating during summer is prevented using a combination of horizontal "shelves" (towards the south-west) that act as brise-soleil system and horizontal brise-soleils (at the top of the greenhouse).

To be carbon-neutral, the houses are heated with willow wood grown at the plantation next to the lake.

The underground heat exchange pipe cools the air entering the house during summer and heats it up during winter.

Solar energy is collected in 3 ways: using a solar photovoltaic panel for electricity, a solar water heater and a greenhouse for heating.

Human solid waste is composted to be later utilized as a fertilizer. It accumulates in an underground chamber where it is transformed by bacteria for a period up to 2 years. Urine is diverted and diluted to be used in the plot garden or the common garden also as a fertilizer.

The house is insulated with prefabricated straw bale panels made of local materials.

Green house design features:

- Water
- o Grey water treatment ponds on each plot
- o Rainwater harvesting for gardening
- o Dry composting toilets
- Materials
- o Locally produced materials
- o Straw bale insulation
- o Wooden structure

- o Wooden roof covering
- o Earthen plaster and wood panel finishes
- o Interior wood-panel walls
- o Recycled stone and concrete foundations
- Health and wellbeing
- o The heat exchange system assures fresh air inside the house and eliminates radon gas stagnation through proper ventilation.
- o The interior spaces receive natural light through optimal window openings and, where necessary, roof windows. The correct amount of natural light also helps save energy.

- Energy
- o Solar energy is used for: electricity, water heating and house heating. For this we use three elements: photovoltaic panels, water heating panels and a greenhouse.
- o A heat exchange system using an underground pipe and central ventilation shafts saves energy by using the underground temperature to regulate the house's interior temperature
- Waste
- o Recycling is encouraged. Food waste and human solid waste are composted. Urine is used as filtered diluted fertilizer. The materials

- used in the building are natural and can be recycled.
- Land use and ecology
- o Natural pavings are used inside the plot area. Gardening is encouraged. Systems such as composting and grey and rain water reuse provide the necessary nutrients and water for the plants.
- Pollution
- o Heating the house and water, when the needs are not satisfied by the solar panel, green house and heat recovery ventilation, is done by burning willow wood. This fast growing wood is harvested from the plantation next to the lake. This system keeps the houses carbon-neutral.