

# THE ELEMENTAL ECO-SPA



A luxury resort made using simple economic means and local resources, formed in harmony with the site, and inspired by the material that will provide therapy to its guests

## EARTH

The Eco-Spa is sculpted from the clay that is used to look after the health and well-being of the guests.

The proposed zero carbon resort emerges from the hollowed out existing landform on the site. Excavation below ground is avoided and the existing trees remain untouched. A slice through the centre of the landform leads visitors towards the pond and the luxury facilities. The excavated earth is used to create beautiful rammed earth perimeter walls and level-access floors. The rammed earth walls (with wood-fibre insulation sandwiched between inner and outer walls) have an extremely low embodied energy, form an airtight envelope, are hygroscopic helping to regulate humidity, and provide thermal mass to help regulate temperature. Easily constructed using local resources, the rammed earth is exposed internally displaying colourful layers of clay, including stunning seams of blue clay.

Local, sustainably produced, timber is used to make the roof-supporting lattice structure on which the remaining earth is re-applied to create a living roof landscape. The roof overhangs the glazed south facade preventing overheating in the summer but enabling the collection of desirable solar gain from the low winter sun. The roof landscape can be used to plant orchards or house small farms. It also helps attenuate rainwater and insulates the accommodation below in winter.

The Eco-Spa's natural materials are low maintenance, forming uplifting yet functional accommodation. At the end of the resort's life, the earth hollows can be re-filled and the landscape returned to nature.

## WATER

The Eco-Spa embraces the therapeutic and practical advantages of its waterside setting.

The three units are orientated to take advantage of the southern aspect and overlook the existing pond. The pond serves the Eco-Spa in a number of sustainable ways.

An open loop hydrothermal water source heat pump, with a fired clay filtration system, powered by photovoltaic panels (with back-up biomass CHP), provides hot water for underfloor heating as well as heating the water used in the bathrooms and kitchens. This can also be reversed for cooling in the summer months. Floating reed beds aerate the pond, help clean the water and promote plant, insect and bird diversity. Treated water from the pond can be used within the underfloor heating system, for landscape and farm irrigation and for flushing toilets. The pond can be used for swimming, with a diving board located on the roof providing a dramatic entry point. A winter hot tub is situated on the existing island looking back towards the Eco-Spa.

Rainwater is collected in vessels on the roof and treated with a solar-powered UV treatment system (with back-up biomass CHP) to provide locally supplied drinking water.

## AIR

The Eco-Spa uses the natural flow of air to provide a refreshing and comfortable environment.

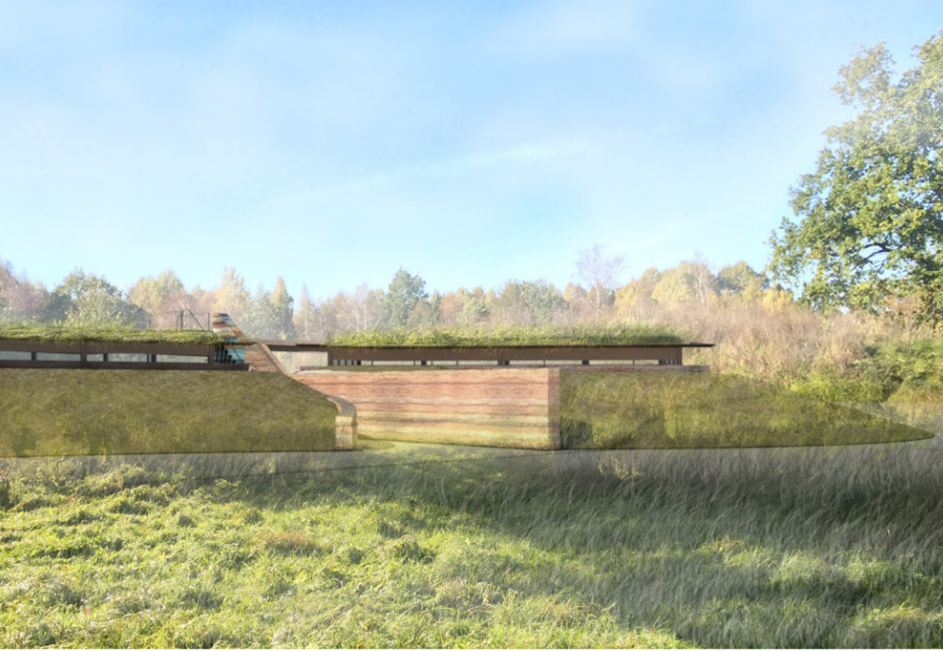
The south-facing glazed facade, sliding doors and high level clerestory windows around the perimeter walls drive the SW prevailing wind coming across the water into the internal spaces to provide controllable, natural cross ventilation. In conjunction with radiant energy and coolth provided by the rammed earth's thermal mass, the air regulates the temperature as well as the internal spaces' humidity levels.

## FIRE

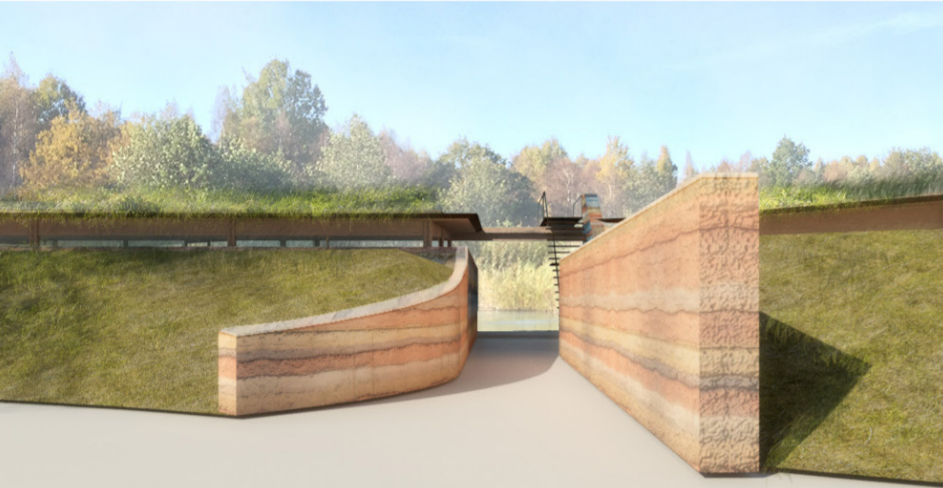
The Eco-Spa harnesses the energy of fire to provide comfort to guests and permanence to materials.

Wood-burning stoves within the living areas can be used in extremely cold weather, using only sustainably sourced local timber pellets. These wood pellets will also be used in the biomass CHP which will provide electrical and heating backup to supplement the photovoltaic panels and underfloor heating.

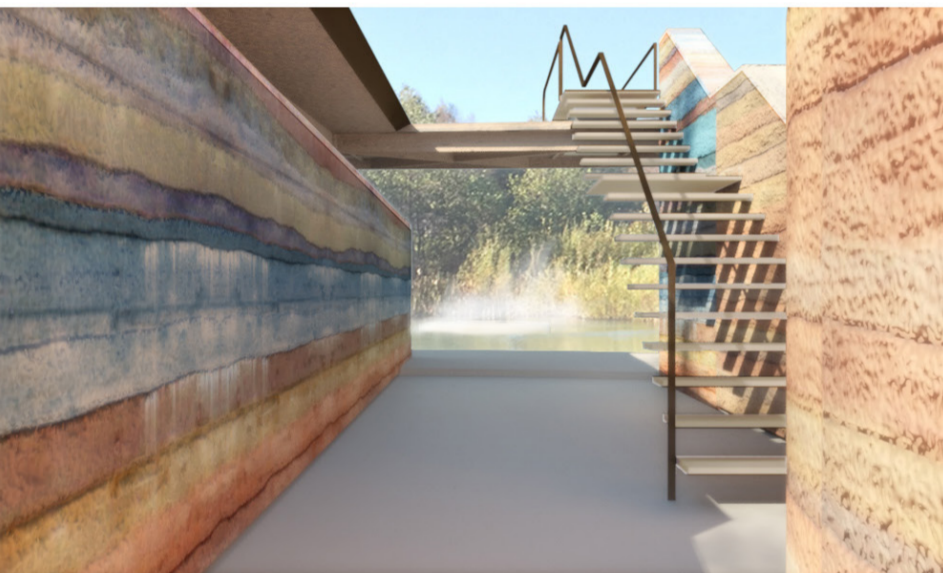
Durable ceramic tiles (made from fired local clay) are used to line wet areas in the bathrooms and to form massage beds and sunken baths within the therapy rooms. The building fabric itself tells the story of the local countryside.



The view upon arrival at the site



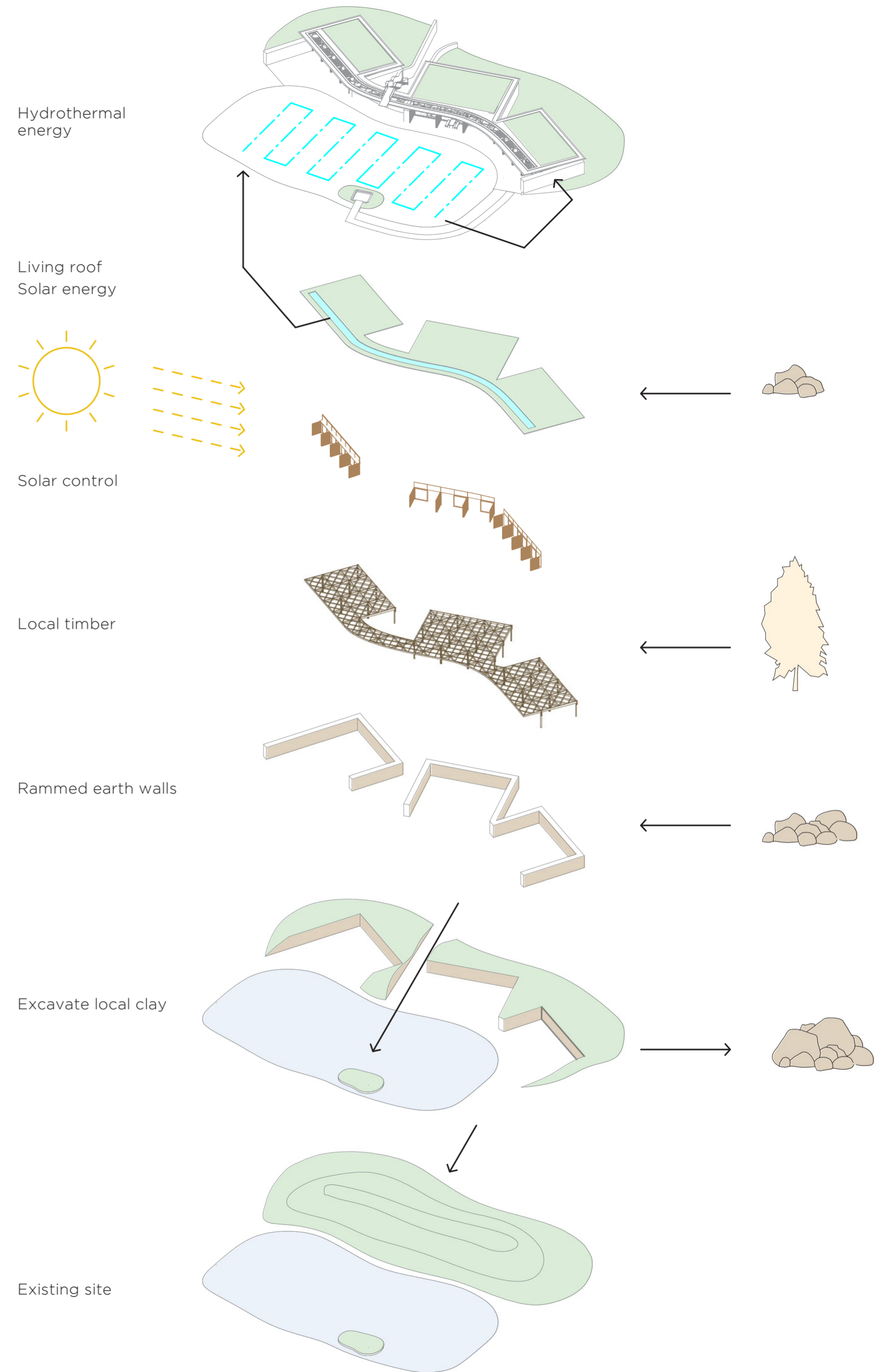
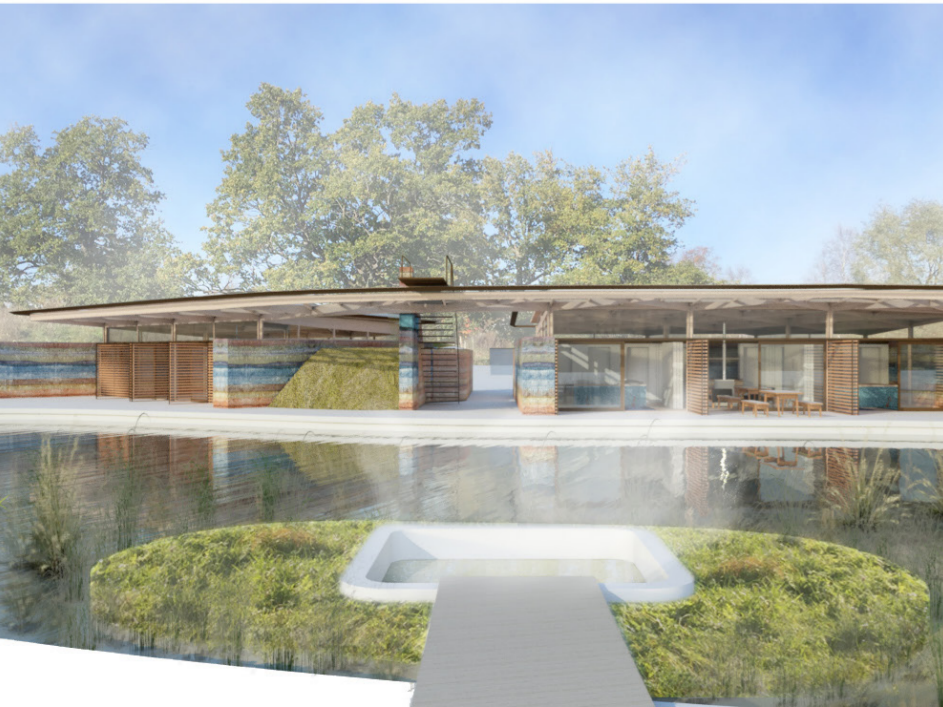
The slice through the existing landform with rammed earth walls

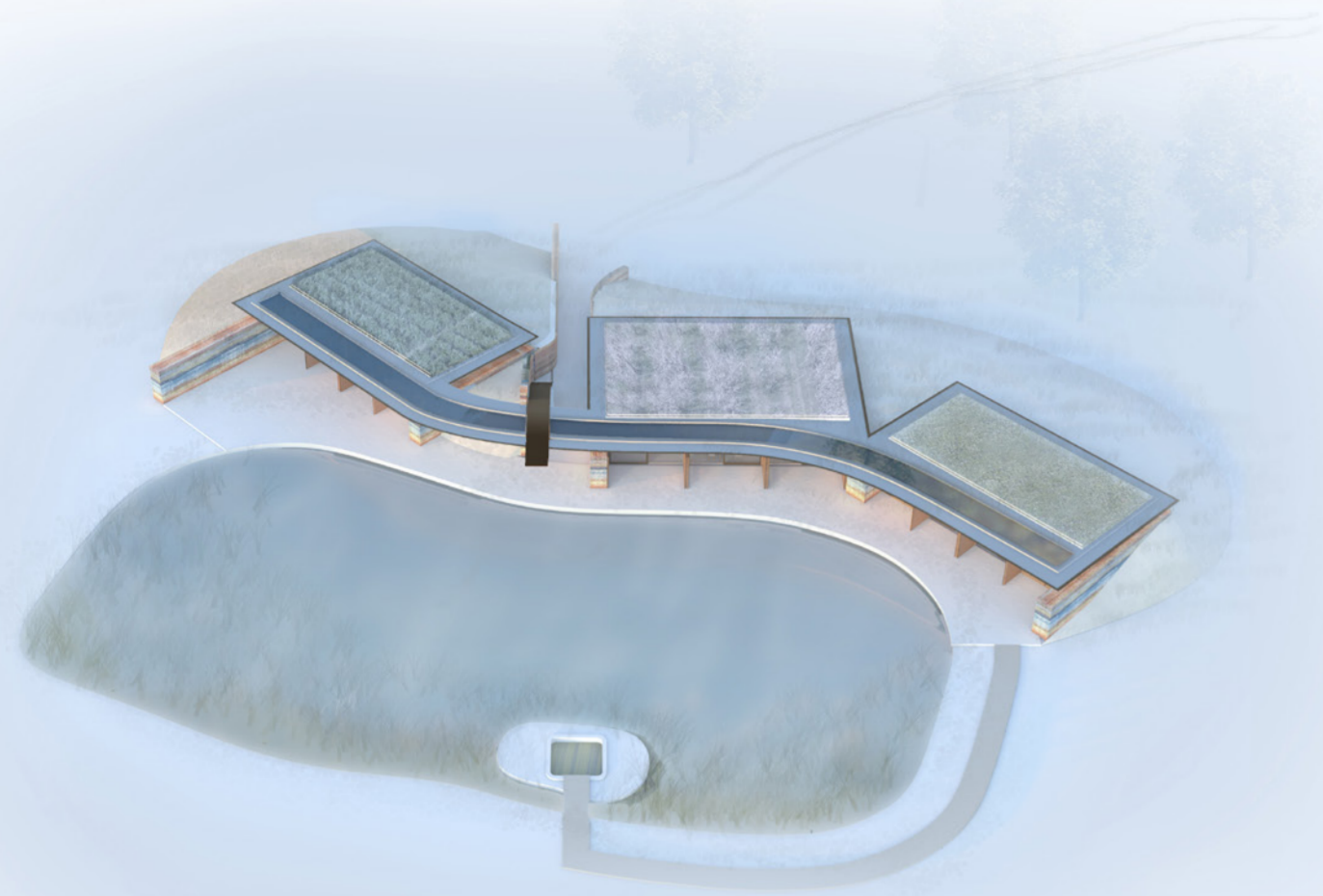


The stairs that lead to the living roof and diving board

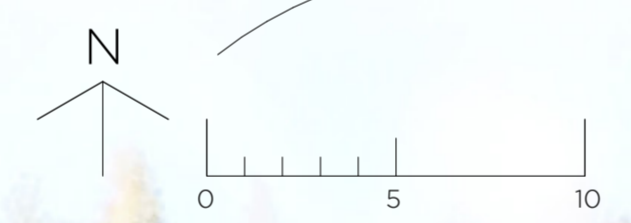
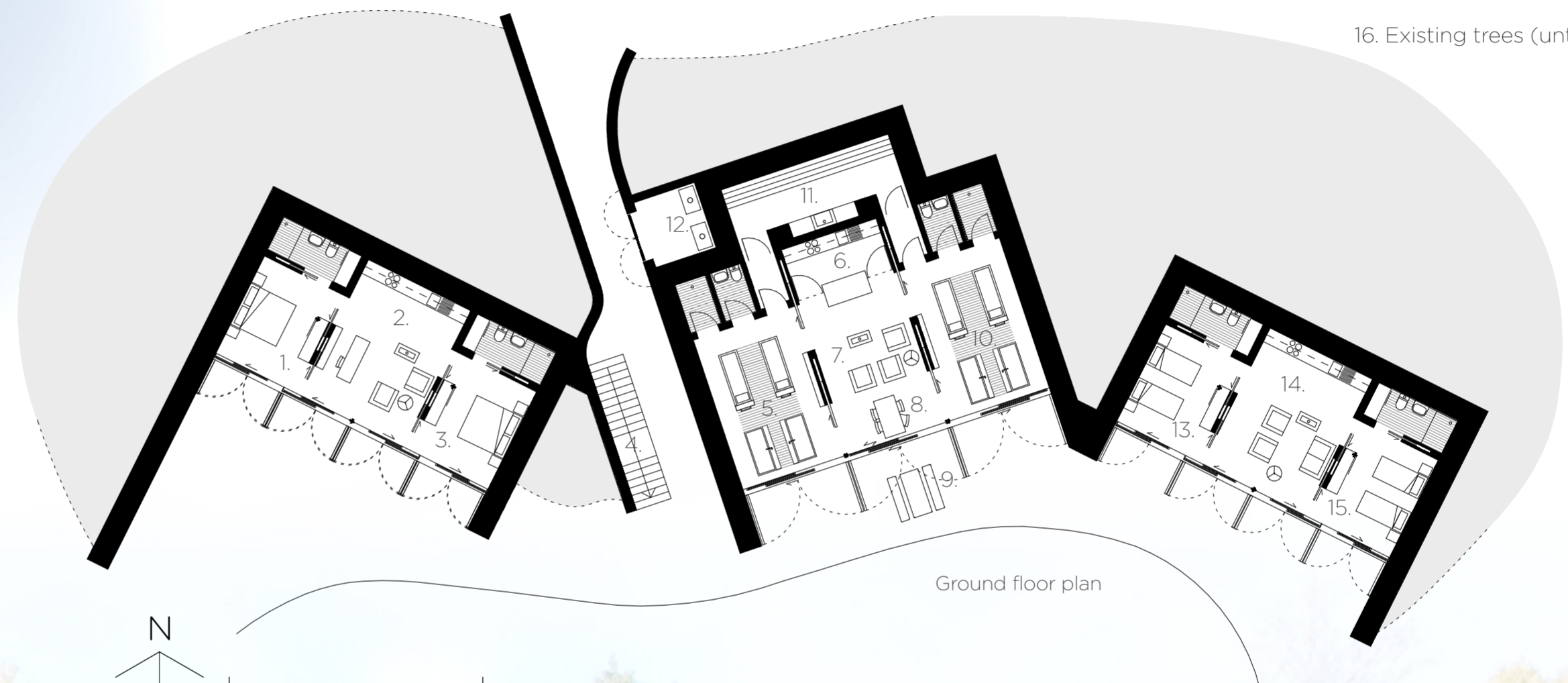


The hot tub that looks back towards the Eco-Spa





- 1. Staff bedroom 1 with bathroom
- 2. Staff kitchen, work / reception and living area with wood-burning stove
- 3. Staff bedroom 2 with bathroom
- 4. Access to living roof and diving board
- 5. Spa therapy room 1 with massage tables and sunken baths, and separate shower and toilet
- 6. Kitchen
- 7. Spa relaxation area with wood-burning stove
- 8. Indoor dining room
- 9. External dining area
- 10. Spa therapy room 2 with massage tables and sunken baths, and separate shower and toilet
- 11. Sauna
- 12. Clay store and biomass CHP
- 13. Guest bedroom 1 with bathroom
- 14. Guest kitchen and living with wood-burning stove
- 15. Guest bedroom 2 with bathroom
- 16. Existing trees (untouched)



Aerial view (above).

The living roofs provide the opportunity to plant orchards and house micro-farms. The accommodation emerges from the hollowed out landform and embraces the pond. A relaxing hot tub on the small island looks back towards the Eco-Spa and provides the opportunity to feel at one with nature.

A view across the pond towards the Eco-Spa (below).

The accommodation is designed to focus on the pond, which can be used for swimming. The living roof overhangs the rooms below and provides a perfect diving spot. The openable façades are orientated towards the sun. Privacy, ventilation and shading can be controlled using the ceramic shutters.

The accommodation is designed to offer long term flexibility. The Staff accommodation can be easily used as a reception building or converted into another Guest House should this be desirable in the future.





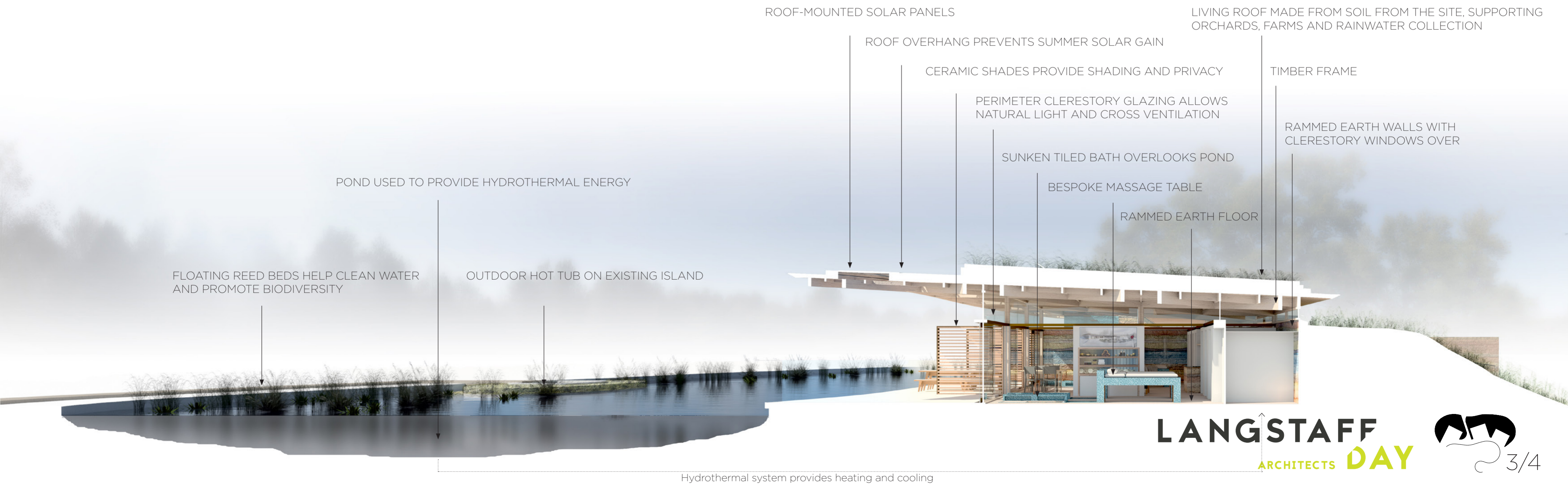
Night view of Guest House, with the internal spaces glowing gently in the forest.

The timber framed roof structure echoes the tree canopy. The rammed earth walls are constructed in layers and tell the story of how the building was made using local resources and simple economic means. Blue clay seams add beauty and reflect the therapeutic function of the Eco-Spa.



Internal view of therapy room in Eco-Spa, with sunken baths at the same water level as the pond.

Blue and copper tiles complement the rammed earth walls and floors. The glazes are formed of copper and iron oxides, copper and iron being constituent trace minerals of blue clay. The building fabric tells the story of the Latvian countryside.





*A view across the pond towards the Eco-Spa.*

*The resort sits in harmony with its site and with nature, and can be used all year round.*