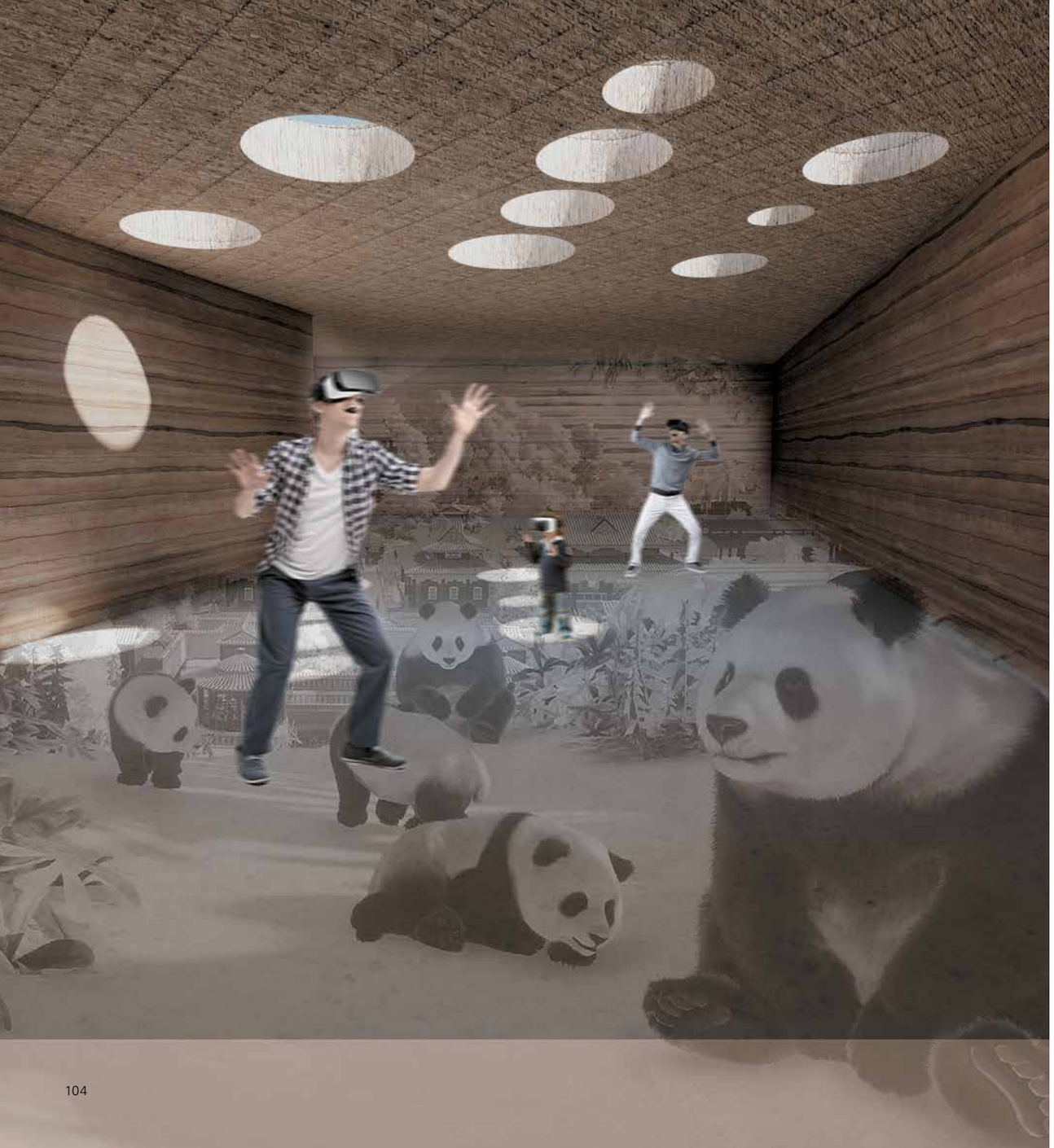


# How on EARTH …? Down to EARTH!
## Can Rammed Earth Elicit Emotions between Humankind and Animals and Transpire as the Future Material of Zoos?

Anotidaishe Mavazhe

**Materials and Prefabrication**
Made from locally excavated earth, this enclosure demonstrates the practical and aesthetic benefits of a material which is so often dismissed as inferior or irrelevant for contemporary buildings. The enclosure and structure are entirely made from rammed earth; therefore the zoo is 99 % recyclable. Complementing the structure is a wooden roof covered in straw.

**A Rotary Exhibit**
The aim here is to bring the panda to an African country: Hwange National Park in Zimbabwe. This will in turn allow tourists and locals to visit the enclosure and witness a non-indigenous animal. Due to its location and climate the enclosure hosts the panda during the winter period and other animals within the national park afterwards. The threshold between humankind and pandas has been redefined by harnessing different stylistic openings and displacing the concept of cages. This is intended to forge an intimate relationship, appealing to the visitor's emotions through experiences, exhibitions and redefined thresholds.

**Circulation and Experience**
The design concept aims to understand the relationship between humankind and natural landscapes within the enclosure as a design medium, a medium that will provide opportunities to reconfigure spaces. This will be achieved through amplification, abstraction, purification, materialisation and juxtaposition. The intent of the design is therefore to stimulate a sensory haptic quality, enabling a reconciliation between the visitor with the animal and its habitat. This experience will be made possible in the design enclosure through the process of stimulating different senses. Materiality will therefore serve as an important factor in the physical construction of the landscape. This experience will be enhanced through spatial manipulation. Circulation is a key element to the visitor's experience and will be designed to maximise the zoo experience, lending structure to a coherent story within the exhibition space.
This »romantic relationship« between the maker and nature informed the design of a building that seeks to achieve a similar sense of mystery and unpredictability in its layout and materiality.

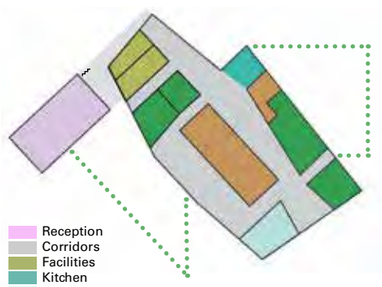
**Second floor**

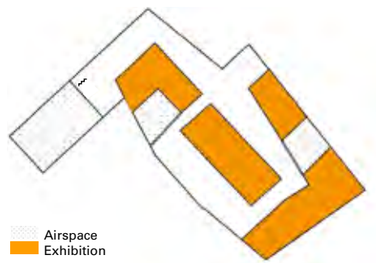

Location Concept

Panda exhibited during the winter period only

1 Wall Exhibition
2 Skeleton Exhibit
3 Reading Pod
4 Projected Exhibit
5 Virtual Reality
6 Disabled Exhibit

**Ground floor**




1 Meeting Point/Reception
2 Reception
3 WC
4 Delivery room
5 Storage
6 Bamboo Storage
7 Indoor Enclosure Male/Female
8 Panda Stall Male
9 Panda Stall Female
10 Cub Stall
11 Panda Stall Female
12 Ablution
13 Kitchen
14 Incubator
15 Exterior Enclosure
16 Zookeeper Lounge
17 Changing room
18 Locker room
19 Showers
20 Circulation

East elevation

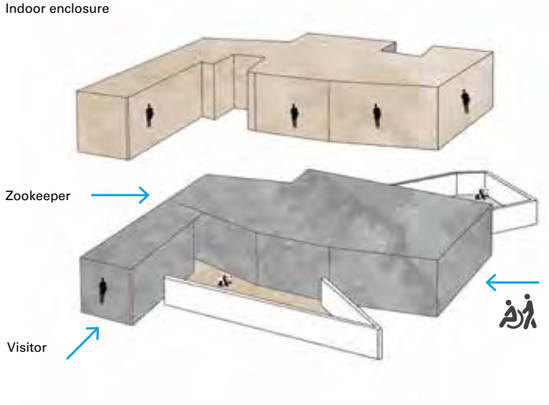
0 2 10 20

Section A

South elevation

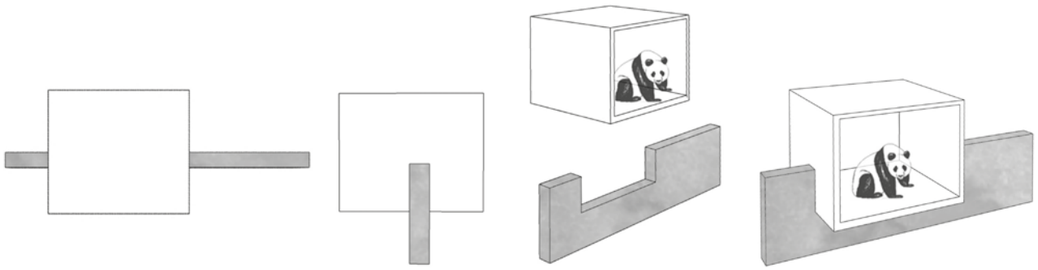
Section B

Indoor enclosure




Exibition space

Panda box



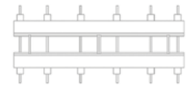
1 Rammed earth construction in Horsham, Australia
Photo: Rammed Earth Enterprises

2 Layers of rammed earth
Photo: Wikipedia, Grégoire Paccoud

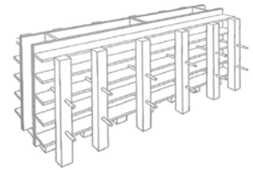
3 Hardwoods Bamboo lasertable wood sheets

**Walls**
The core areas are supported, made out of a mixture of sand, gravel, loam and concrete and compacted by means of a pneumatic tamping device.
This results in an aesthetically pleasing sediment look after removal of the formwork. The goal is to achieve a zero-energy building. At the same time the walls serve as hygroscopic moisture storage and have a very good effect on the indoor climate.
*Further advantages*: low technical effort, inexpensive, fire-resistant, good room acoustics. Ecologically, because the material is on site and thus saves transport costs.

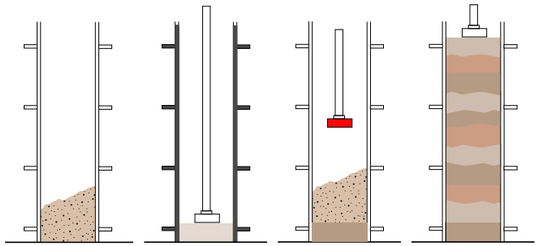
**Fine sediments**
The aesthetic charm of the layered structure is an additional rural design plus. Beautiful is above all the storage capacity.



**Reinforced plywood frame**



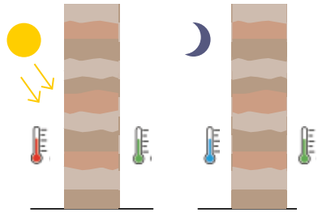
**System Diagram: Rammed earth compressed**



**Moist earth** mixture of sand, gravel, clay and concrete

**Reinforced plywood frame**

**Pneumatic backfill tamper**



**Day**: Wall absorbs heat slowly and keeps the internal temperature stable.

**Night**: Wall releases the heat absorbed during the day, releasing it at night.