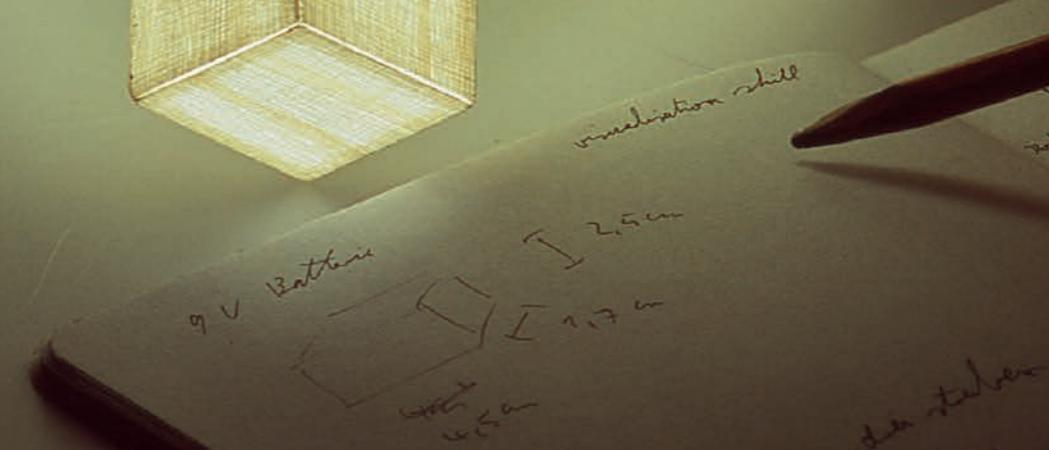


TWO THOUSAND TWENTY THREE

# **ANDREAS WEIDAUER**

PRODUCT AND PROCESS DESIGN

# **PORTFOLIO**

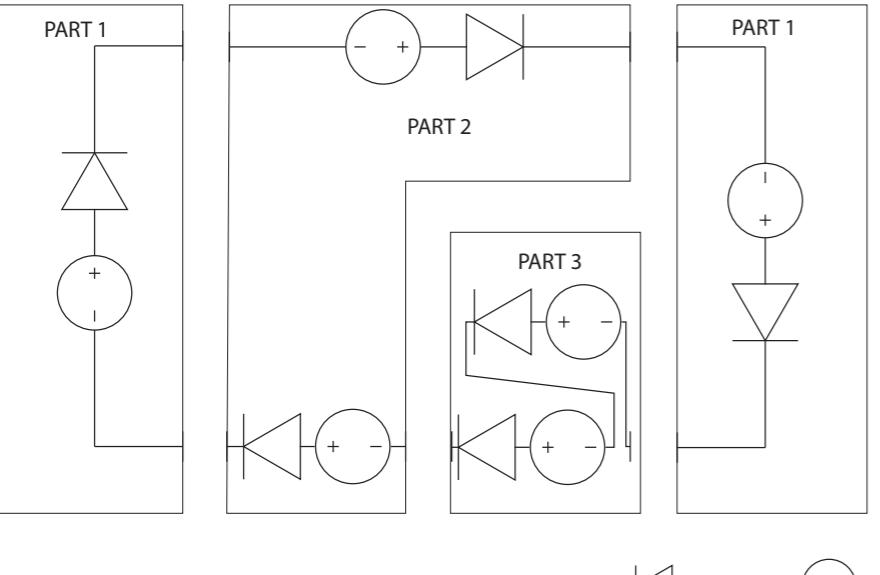




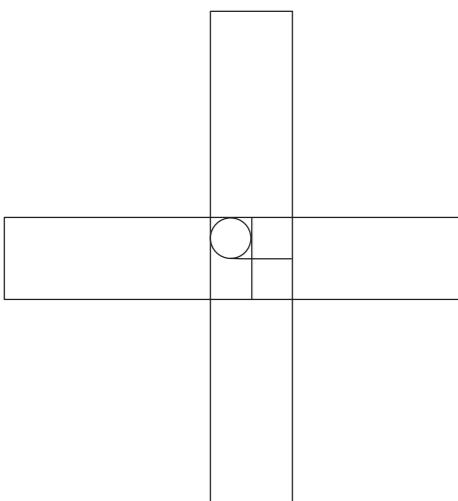
# LIGHTO

Tama Art University Tokyo

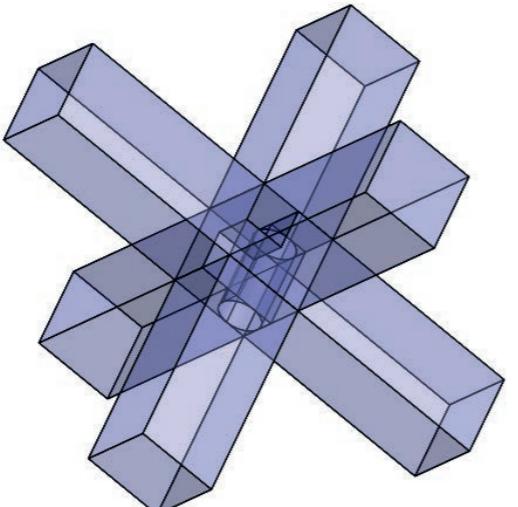
2019



circuit drawing

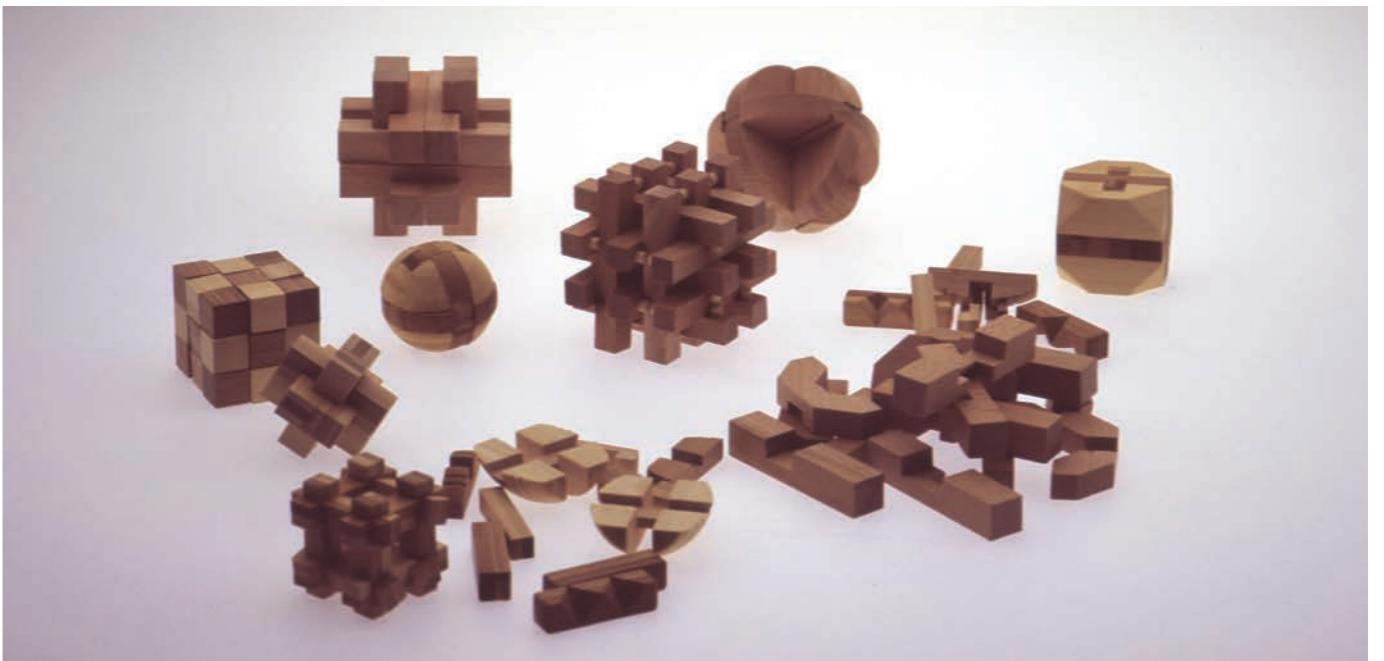


technical drawing



CAD drawing

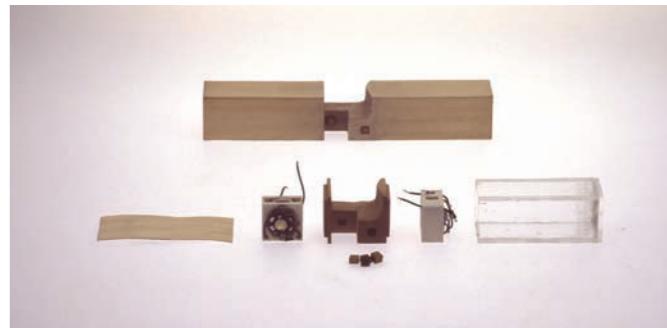
Lighto is the result of combining Japanese tradition with nowadays technology. Inspired by the Japanese Chidori toy it creates a new and playful way to turn on the light. Placed on the table it looks like a small architecture and with its soft glowing, it is the perfect environment for new ideas.



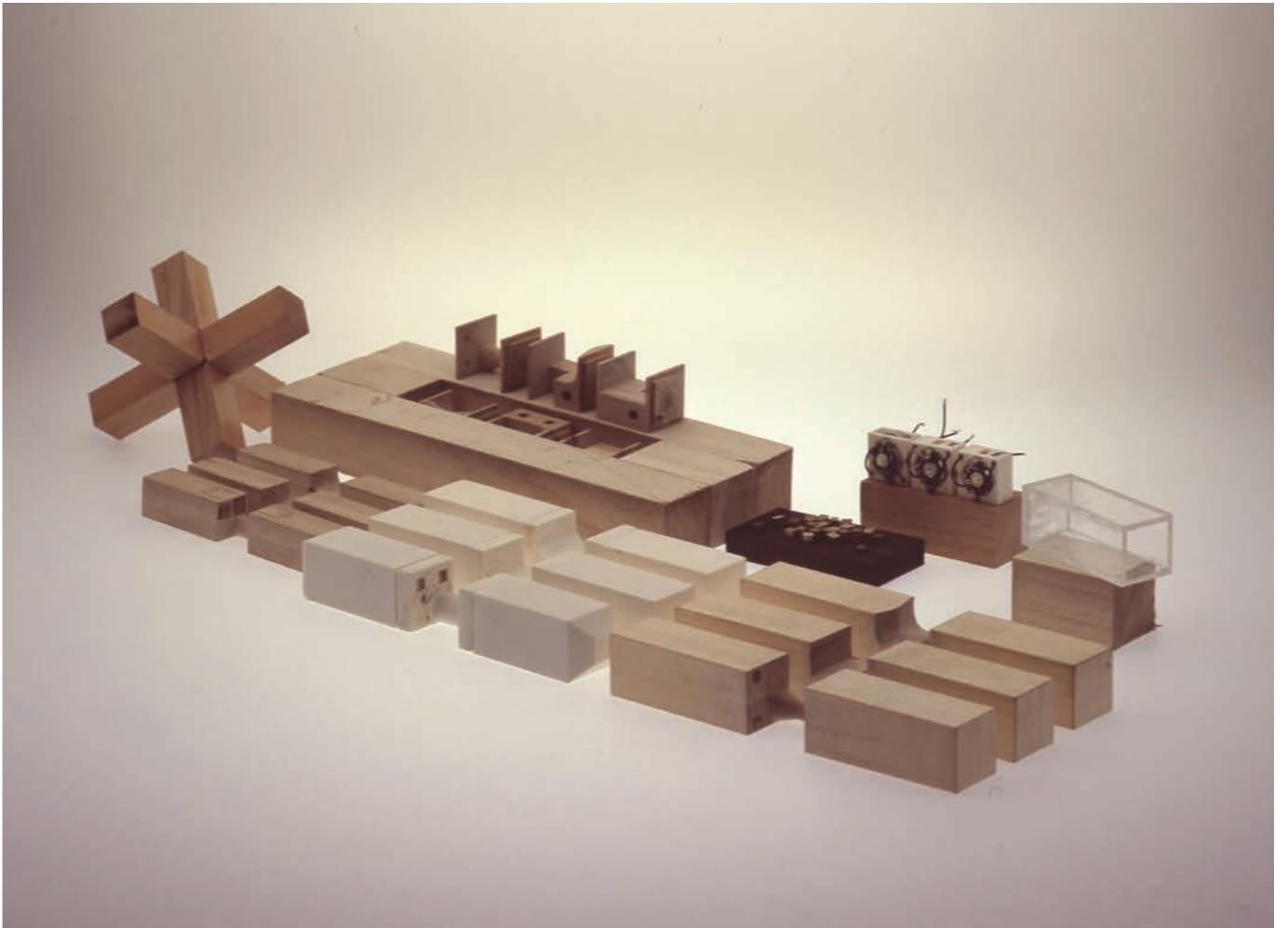
Japanese wooden puzzle



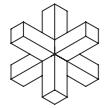
first prototype with electronic components



final prototype components



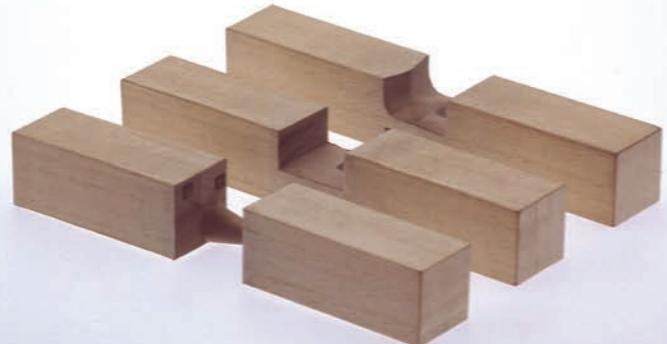
model transformation to final design



# LIGHTO

Tama Art University Tokyo

2019



Lighto consists out of three bodies



joining the two matching parts



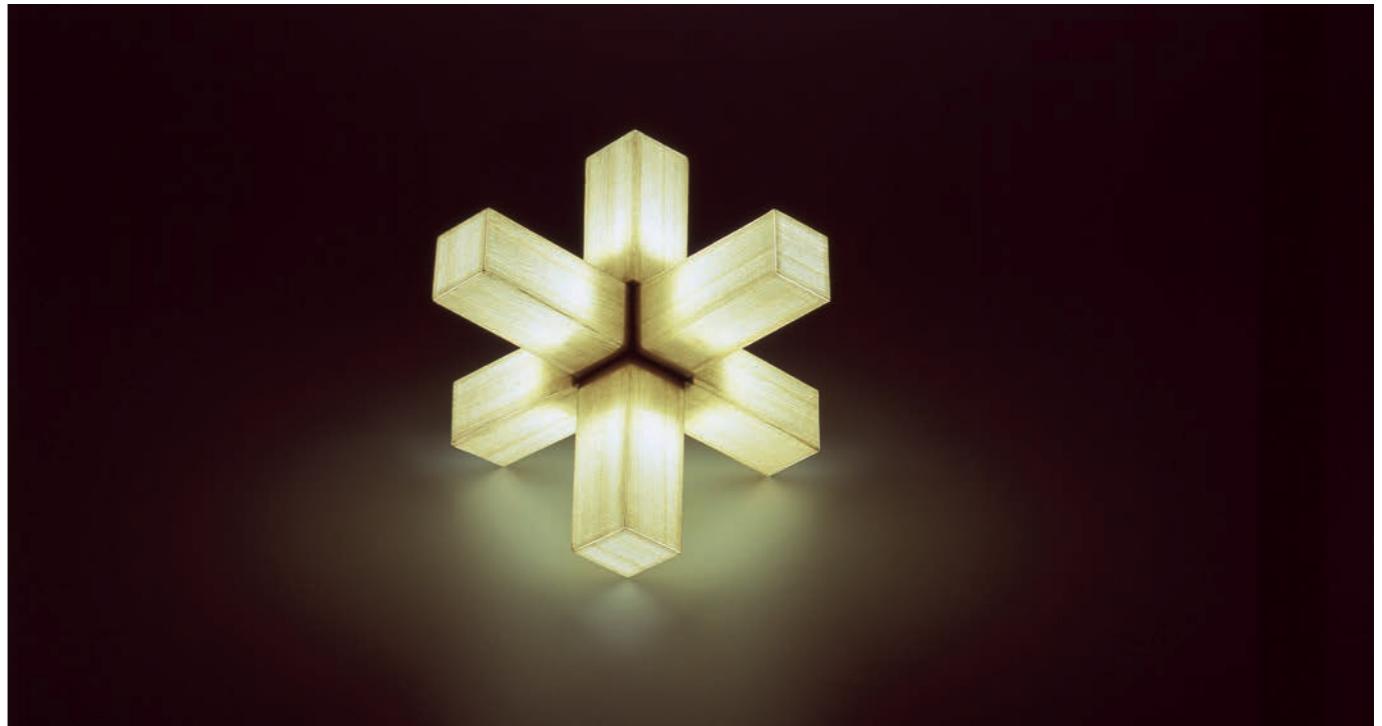
inserting the third body



by rotating the final part the circuit closes



the puzzle is successfully solved



Lighto provides light

# Softagon

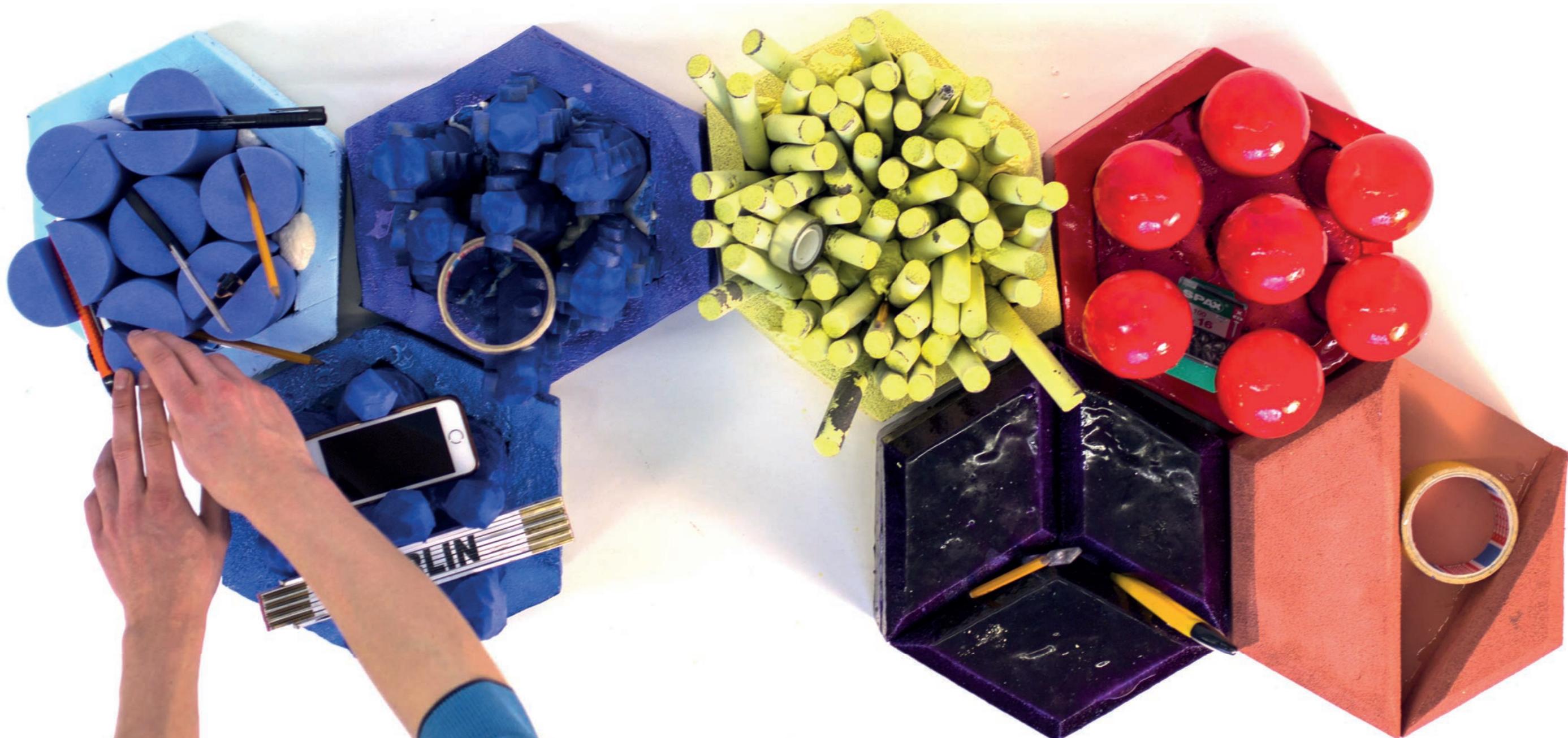
Berlin University of the Arts

2018/2019

Transforming chaos into order is an everyday challenge that confronts us every day. But which order system is the best to live with. Tables offer large spreading areas, but they take up a lot of space in the room. Boxes have a large storage volume, but the objects are difficult to find. Shelves can accommodate much of the same size, but when items of different sizes are stored, a lot of storage space is lost.

Is it possible to combine the advantages of these different systems and eliminate the disadvantages?

Softagon is the result of a series of investigations into how objects can be quickly, flexibly and clearly placed anywhere in a storage system.



**christmas tree**

The fir forest holds your objects, but woe the tree gets shaken too much. The tapered tips ensure good visibility.

**mushroom forest**

The mushroom has an undercut form which holds the objects in place, it works also upside down. A disadvantage is that objects are more difficult to identify because of the fungus.

**sea anemone**

Many thin tentacles fix the objects in position.

**octopus**

The imitated suction cups on the tentacles prevent objects from slipping out.

**split noodle**

Thanks to the plug-in principle, the objects stay in position.



Softagon in use

Softagon is a flexible order system that allows the user to arrange objects on the wall as desired by simply plugging them in. In chaos, mixed up or in a neatly arranged museum-like order, everything is possible. Whether plugged in, placed, or parked, everything is permitted. Visibly visualized arranged on the wall, the room is traversed by an architecture of objects.





Principle 1: flax woven through lignin



Principle 2: white lignin edge



Principle 3: furry surface



Principle 4: flax over complete surface



LignoFlax exhibition



LignoFlax different possible manufactured shapes

LignoFlax is a material and shape study investigating the potential of lignin and flax fibers as a composite material.

Lignin is a natural biopolymer found in plants and trees. It acts as a glue to hold the individual cell walls together.

A proportion of 30% lignin is found in every wood or lignifying plant. Lignin is a resource that grows back by 20 billion tons every year.

In addition to its high natural availability, lignin is also produced worldwide as a waste product in paper production, amounting to a total of 50 million tons per year.

If lignin is mixed with natural resins, natural fatty acids, cellulose, biological additives and natural reinforcing fibers, the result is a bio-plastic that can be processed under increased temperature and pressure.

ARBOBLEND® from the southern German manufacturer Tecnaro GmbH is a thermoplastic that has been designed and optimized for industrial plastics processing.

The flax or also called linen is a historical culture plant.

The Bcomp ampliTEx® series represents a pioneering technology that integrates flax fibers into state-of-the-art composite products. The Swiss company uses regional European flax for this purpose. In the process, the non-crimp flax fiber fabrics ensure maximum stability and represent high-performance natural fiber composites.

By combining these two natural materials, you get a 100% biodegradable natural fiber composite.

# LignoFlax



Materials required: Mold release agent, baking paper, metal sheet, protective gloves, positive - negative mold.



Cut the manufactured lignin sheet to the required size.



Make a lignin - flax composite and heat in the oven at 210 °C for 15 minutes.



In the meantime, apply the mould release agent to each positive - negative mould.



Pressing lignin - flax composite in the mould



Removing the finished workpiece after cooling down

**Claymetalc**  
**corals**



# Claymetacorals

Berlin University of the Arts

2018



experimental setup

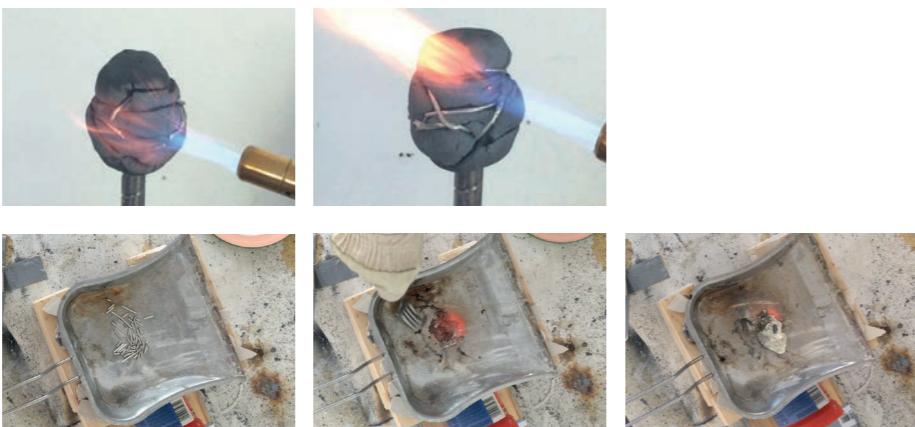
Experiment: Is it possible to mix liquid tin with clay in a meat grinder.



Experiment: How does a clay ball wrapped in tin wire behave in rotation to a blow torch.

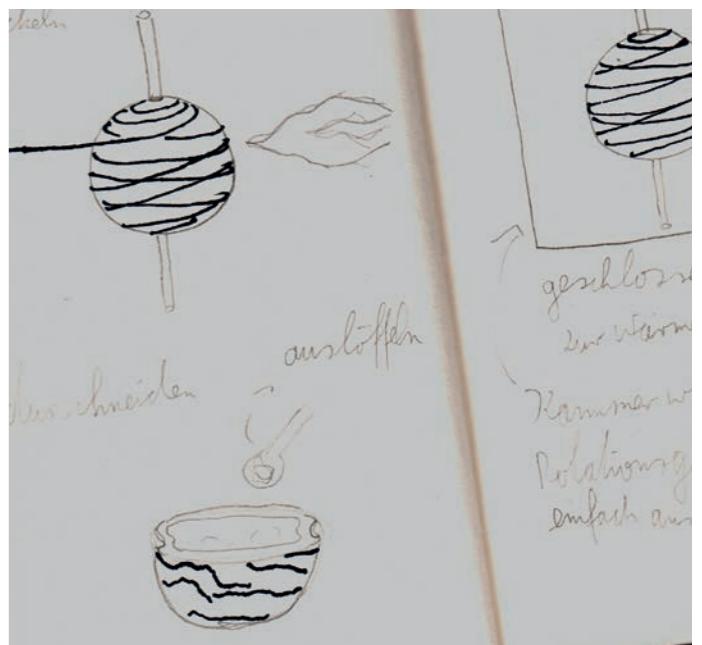


Experiment: Piece of clay in a bath of liquid tin.



Conclusion of the experiments: The temperature of the blow torch can't fuse the clay and tin together. What will happen at higher temperatures?

Claymetacorals has grown from a variety of experiments. The journey began with the exploration of whether it is possible to combine clay with metal. For this, I took the blow torch, which caused the tin to melt inside the clay. The soft clay, on the other hand, shattered on contact with the heatwave. This fascinating contrast made me raise the question, what will happen at higher temperatures and other metals? I investigated the behavior of the following metals: Tin, zinc, copper, brass, bismuth, barium sulfate and silver at temperatures of 300 ° C, 850 ° C and 1250 ° C.



sketch idea



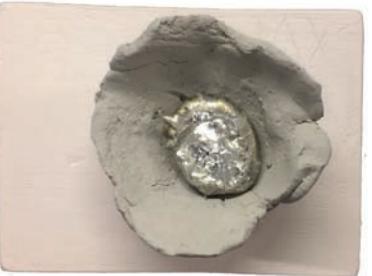
Tin stung in clay.



Brief heating with the blow torch at 300 degrees Celsius.



Tin placed in the clay trough.



Test objects placed in the ceramic kiln at 1250 degrees Celsius. Interesting colors and structures. How will other metals behave?



Test objects placed in the ceramic kiln at 850 degrees Celsius. Reddish discoloration of the tin.





bismuth



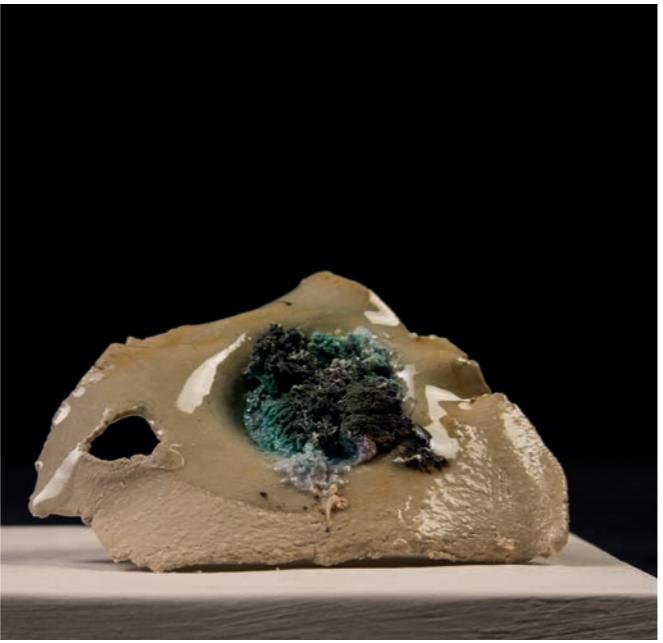
tin



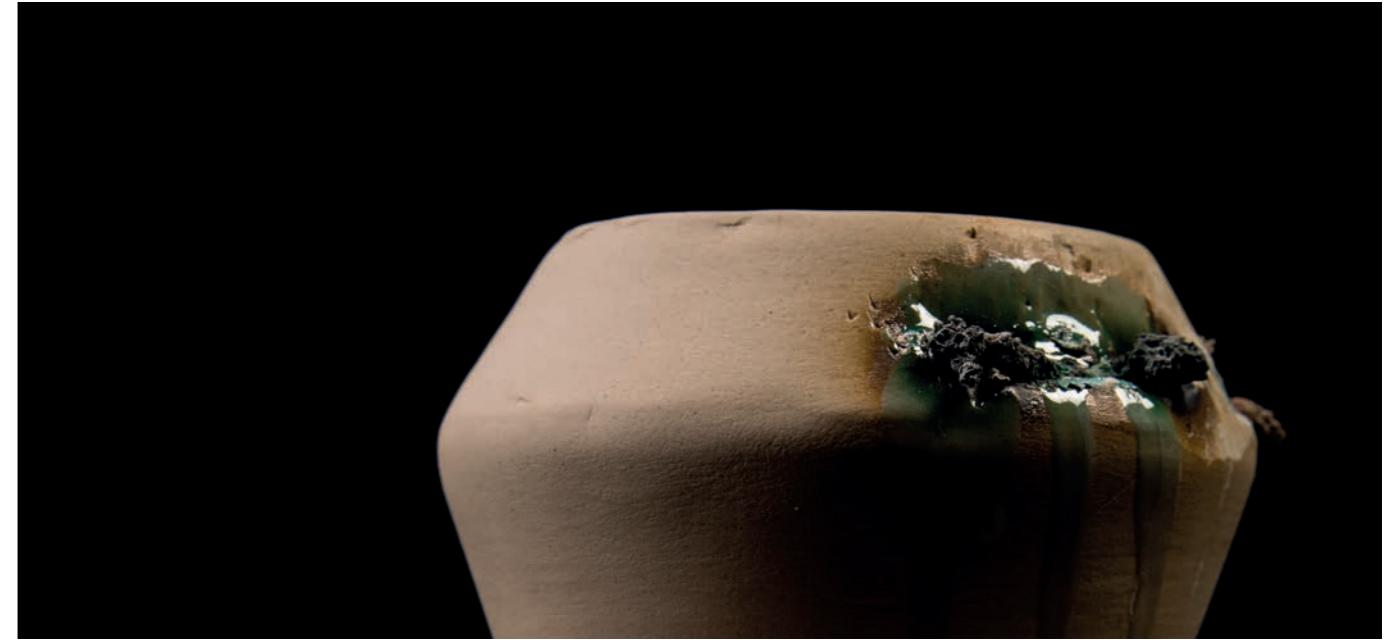
tin, brass, copper



copper



tin



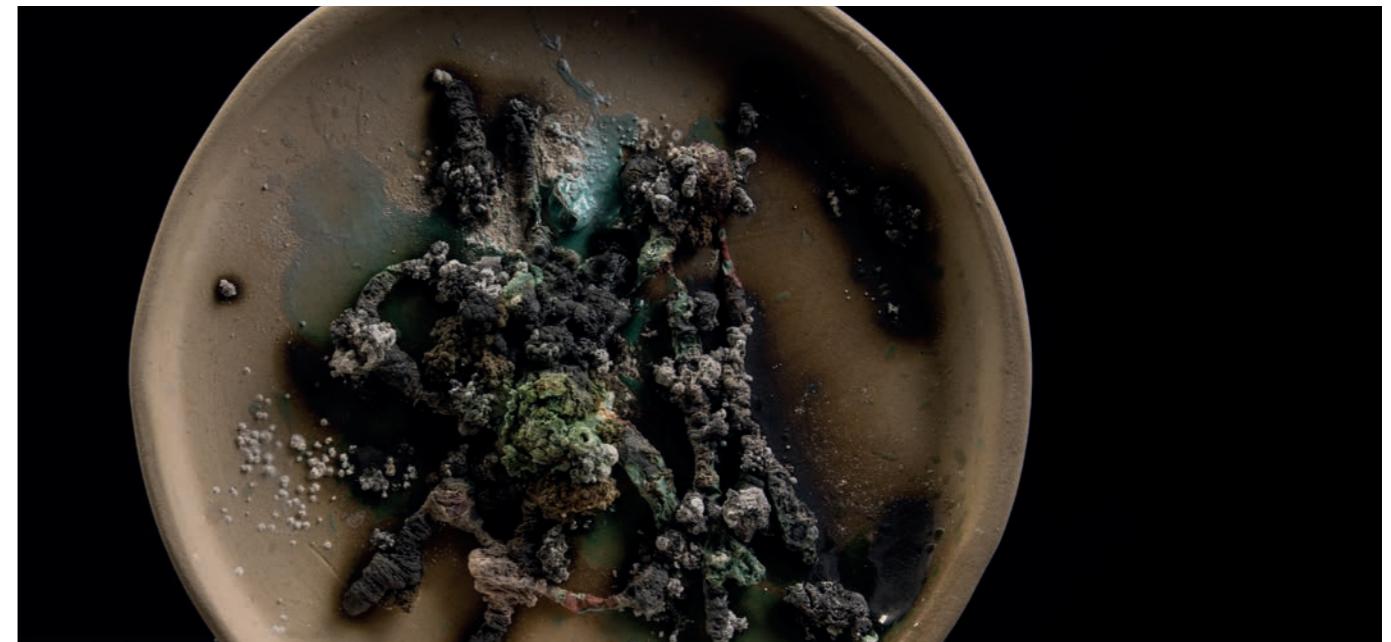
tin, brass, copper



calcium sulfate



tin



copper, tin, zinc, brass, bismuth

# The tree planting caterpillar

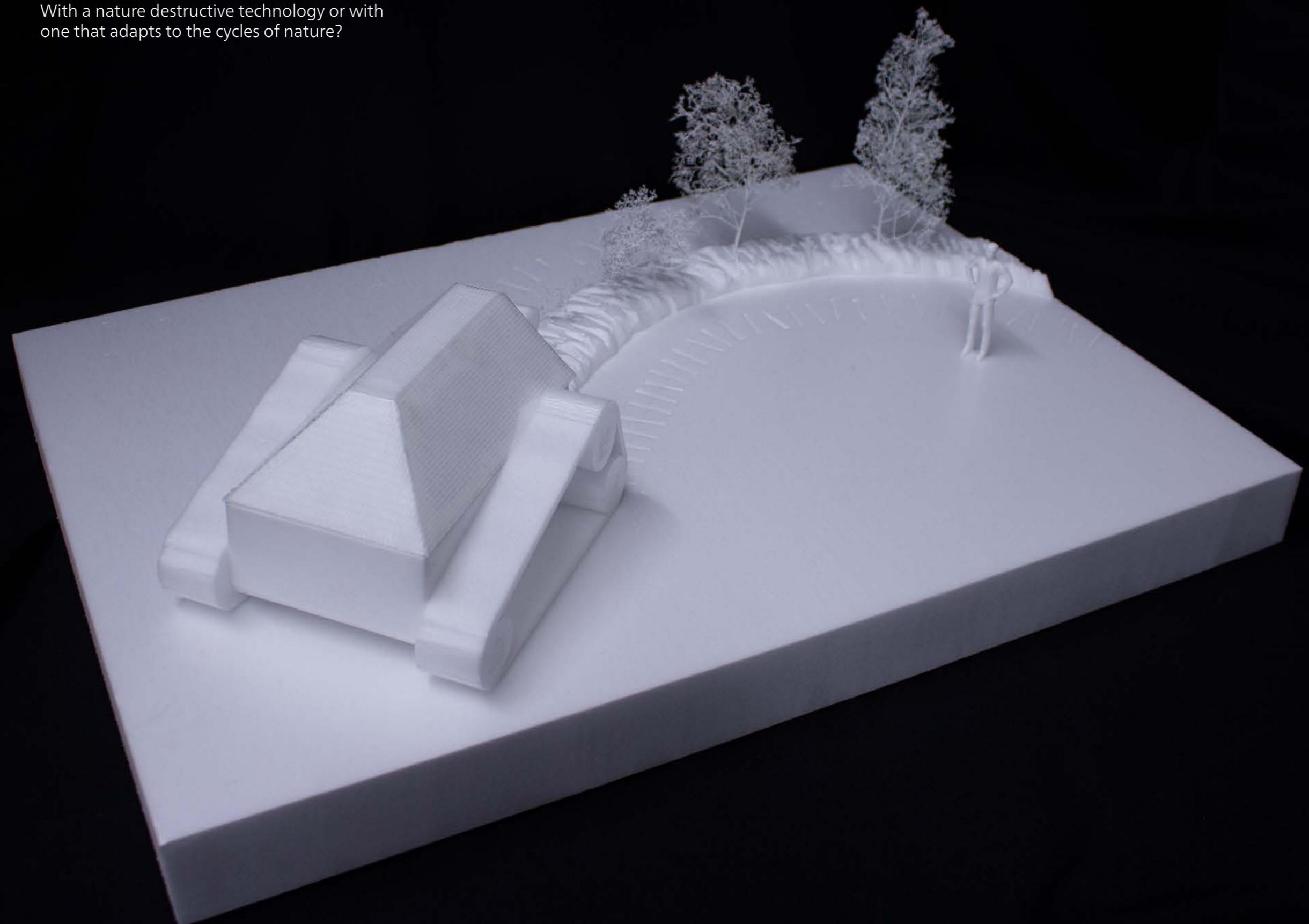
Berlin University of the Arts

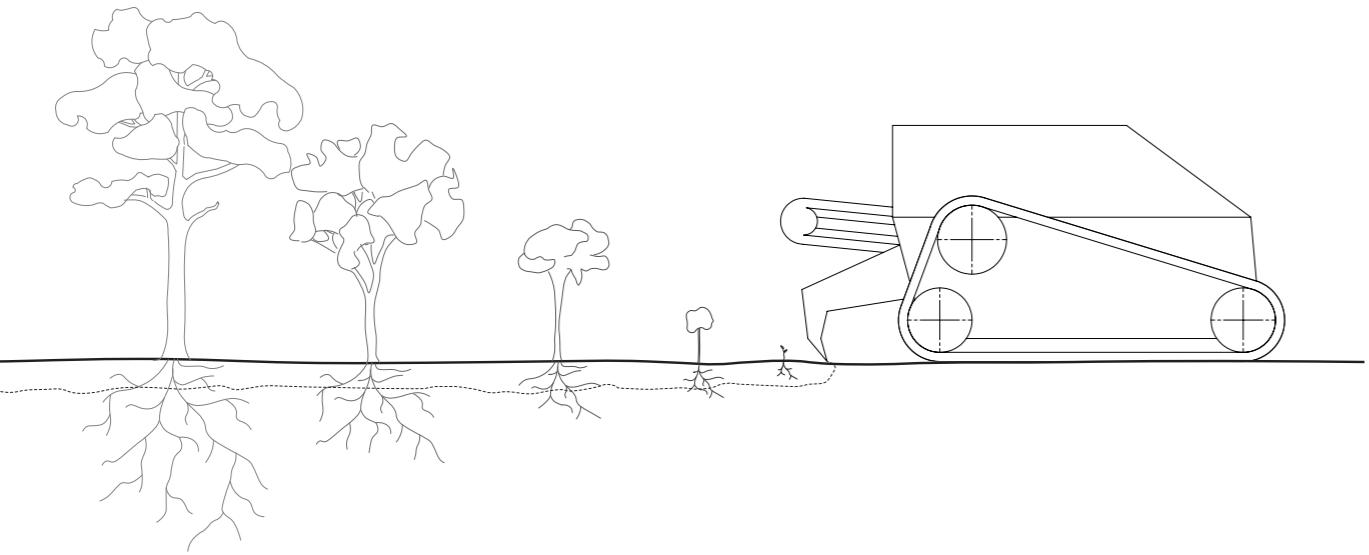
2019/2020

The fictitious utopian design of the tree planting caterpillar shows how technology can fit into nature and natural cycles in order to create a sustainable flora.

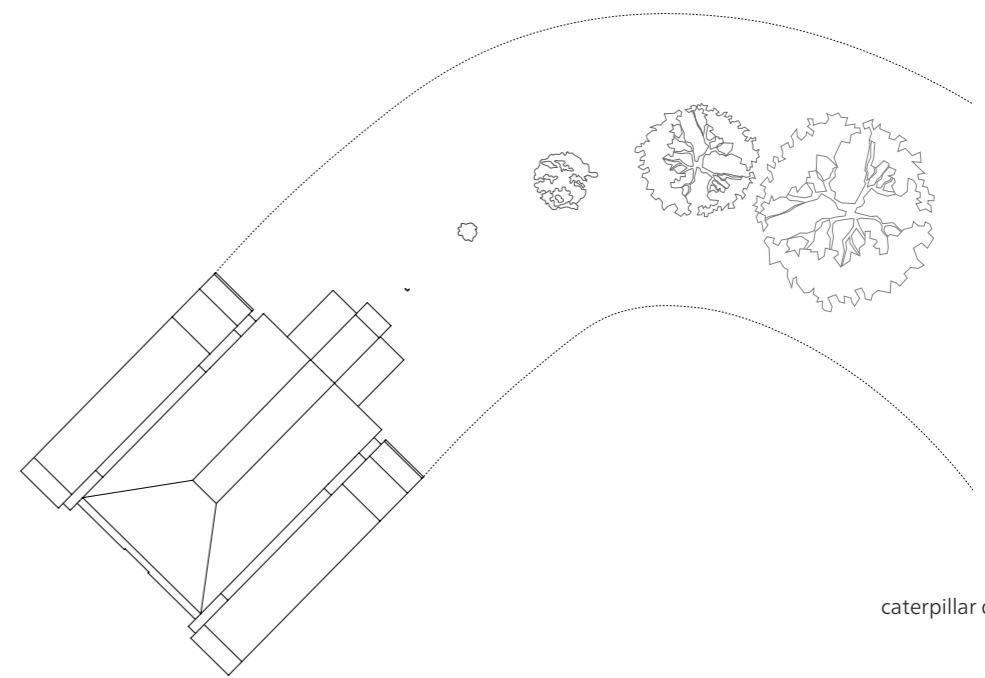
This is not about an efficient tree planting

machine, but rather the act of a gesture, to raise awareness, with what kind of technology we want to continue to live in the future. With a nature destructive technology or with one that adapts to the cycles of nature?

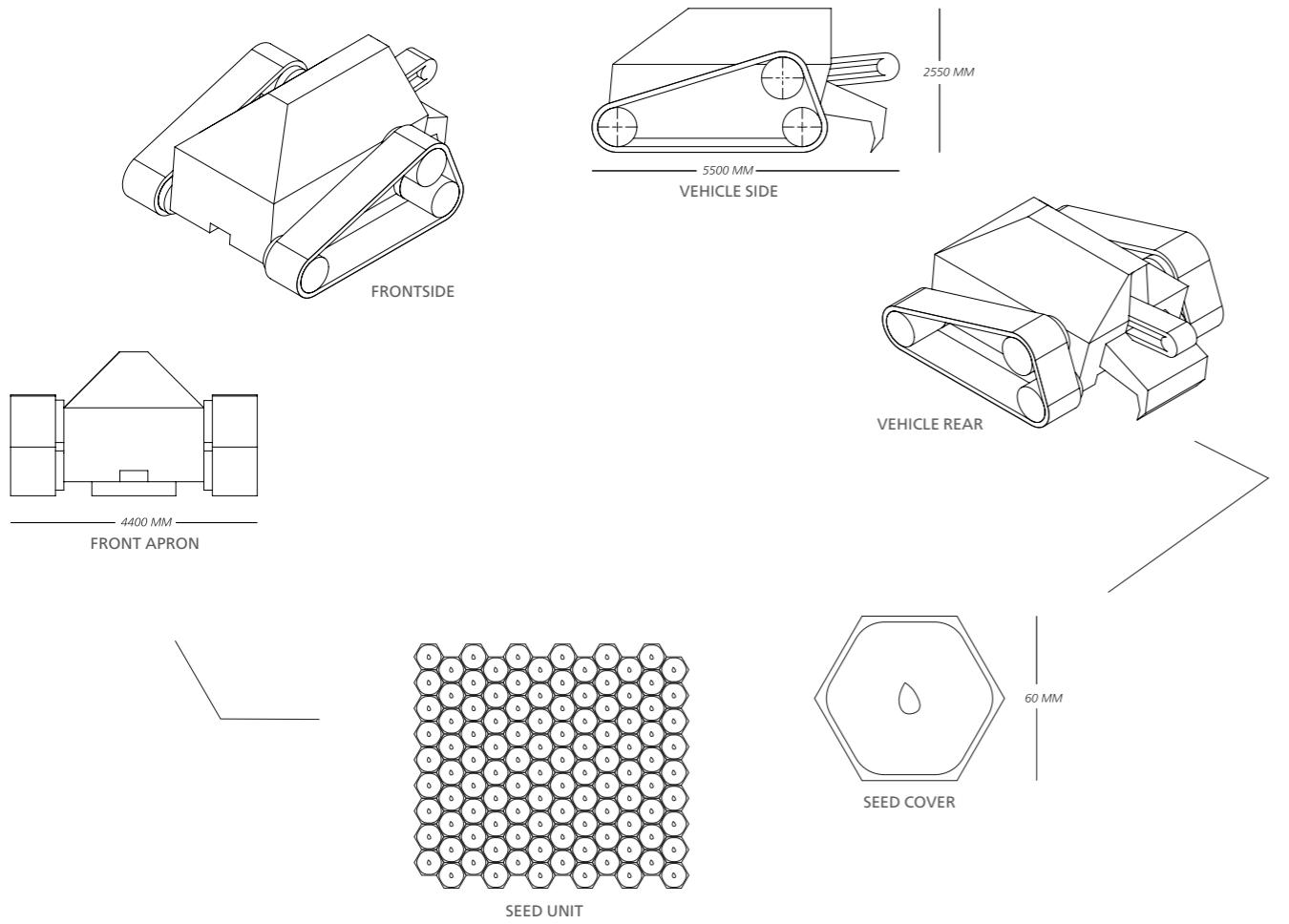




caterpillar driving view

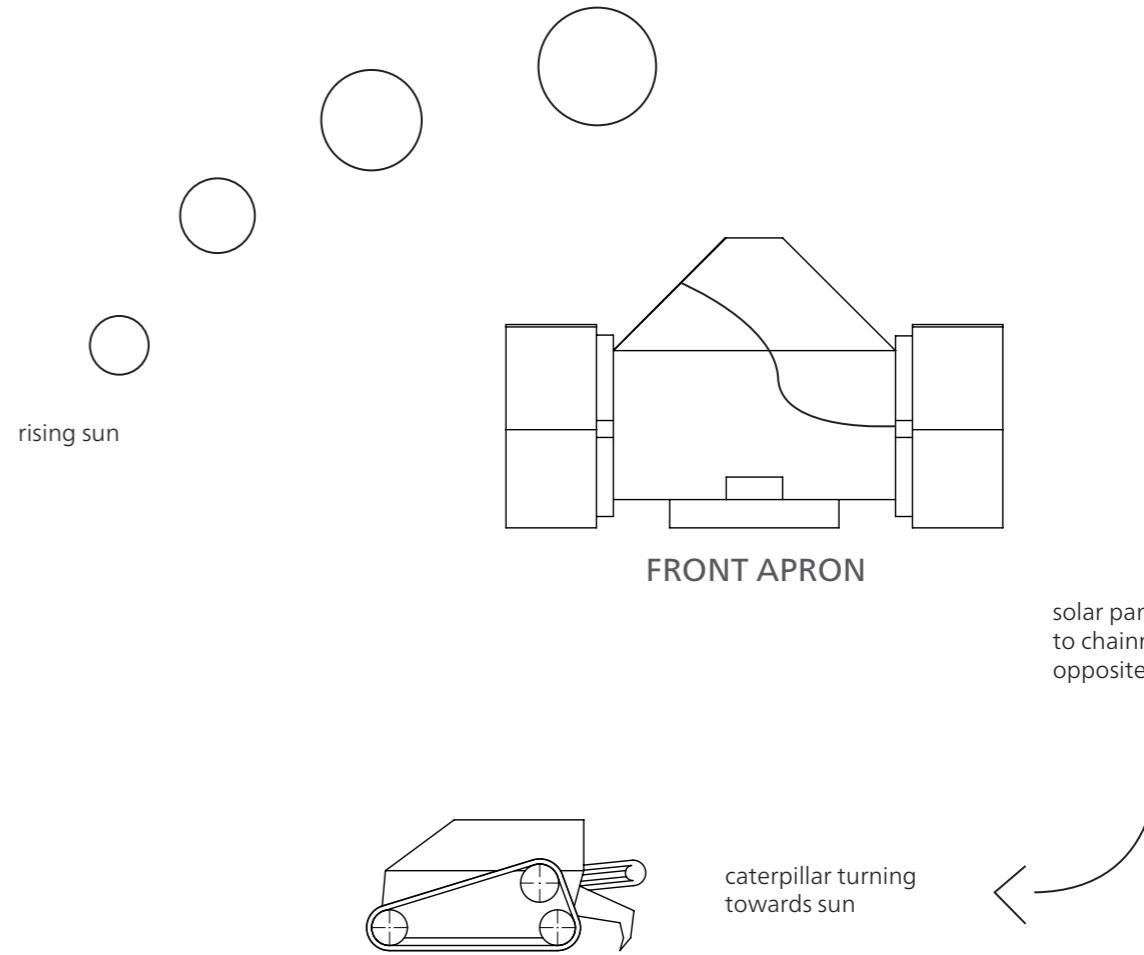


caterpillar driving elevation view



caterpillar technical drawing

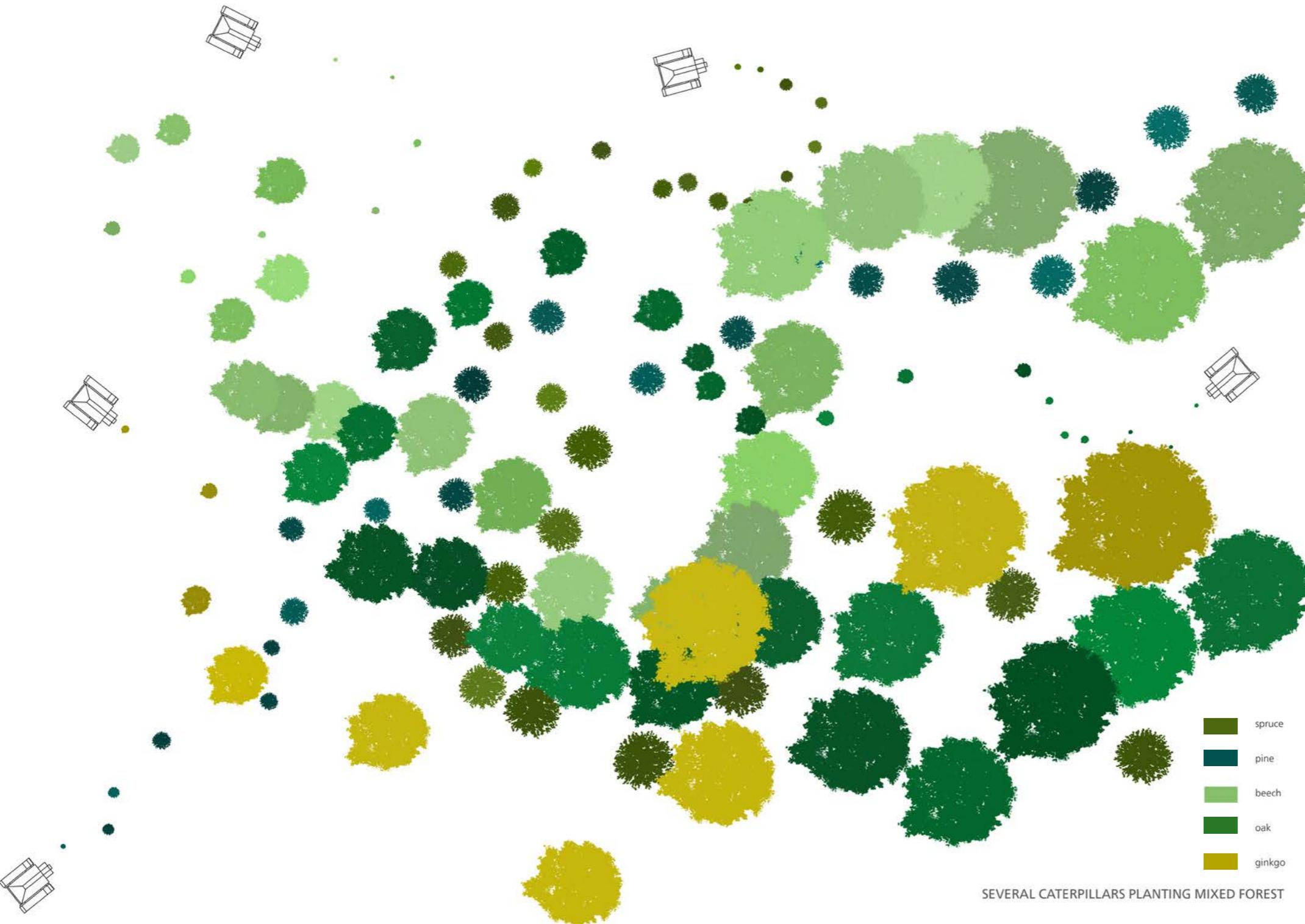
The bow of the caterpillar always contains a huge supply of tree seeds. Each individual seed is placed in a protective cover, which contains all the necessary nutrients in powder form for the first growing period. The hexagonal shape offers an efficient storage system. If the seeds leave the mother ship via the conveyor belt, they are on its own. As soon as the protective cover comes into contact with moisture, it begins to decompose. The nutrient powder turns into a gel and the seeds start to germinate.



caterpillar turning towards sun

solar panel connected to chainmotor on the opposite side

caterpillar technical drawing



SEVERAL CATERPILLARS PLANTING MIXED FOREST

Time doesn't matter, I can live forever as long as I don't run out of tree seeds. Guided by the sun, I drive through the landscape. Sometimes faster, sometimes slower. With burning sunshine, I manage to cross an entire valley in one summer. If the conditions are not in my favor, it can take up a decade for the same distance. If the sunlight falls on my right side, the chains are moving on the opposite side and I fulfill a right turn towards the sun. On the other hand, if the sunlight falls on my left side, I turn the other way around. My nose always facing the sun. During winter, the trees are at rest. In this time, I only move very gradually, it means rest for me too. When the first sparkle of spring thaw my solar cells, my chains start grinding against the awakening winter landscape. The warmer we head towards the year, the faster I get ahead. By going to warmer countries towards the south, the advantage of my accelerating speed allows me to plant trees at larger distances from each other. Because of the increased distances, the trees can develop further treetops and provide more shade for animals and humans. In northern countries although, I plant close to close. Every now and then I meet some colleagues and we plant a mixed forest together. One sows the spruce, the other the pine, the third the beech, the following the oak, and a lucky caterpillar may scatter the ginkgo.

# Bamboo Lab

Tama Art University Tokyo

2019



bamboo forest in Tokyo, Japan

Bamboo has great potential as a rapidly growing renewable resource, but for bamboo products in the West, the market is still relatively small. Classified as a non-wood product, bamboo could be used to a large extent as a substitute for wood in the industry. It is particularly characterized by its high growth rates,

good mechanical properties, environmental friendliness and can be used in a wide range of applications. The strength of bamboo products contributes to their green and environmentally friendly image, as well as generally perceived as exotic and mysterious products. In this design, I approach the research of the material

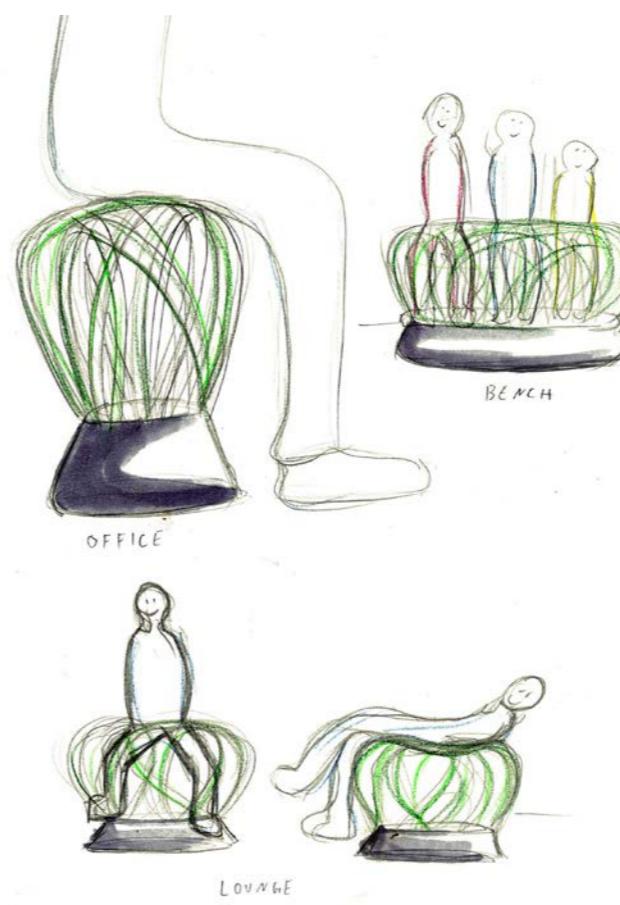
bamboo, the understanding of the properties, and then transfer to a product. The natural material is characterized by strength, lightness, and a high degree of shape freedom. If you split the bamboo into strips, they are very flexible and resilient.



1. Using a Japanese saw, the bamboo is sown off at the bottom between two growth rings.

2. After the bamboo has been successfully felled, the branches of the crown are directly cut off. After all branches have been detached, the bamboo trunk gets pulled out of the bamboo forest.

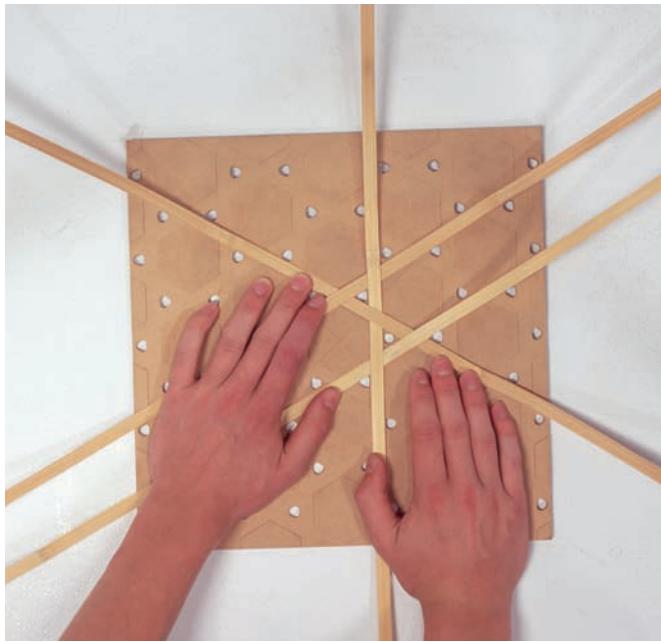
3. Once in an open space, the bamboo gets split up into several strips by using the bamboo splitter. Placing the splitter on the rejuvenated end of the trunk, the trunk is pushed against a wall and the bamboo tears open along the edges.



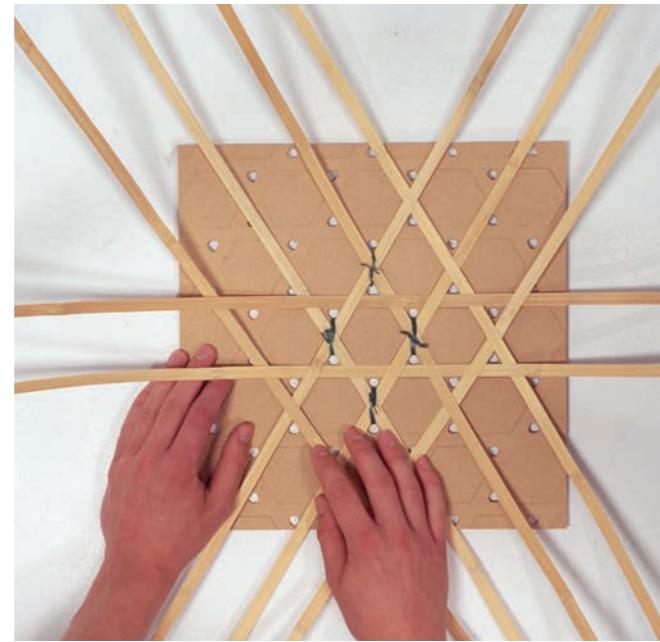
bamboo chair sketch



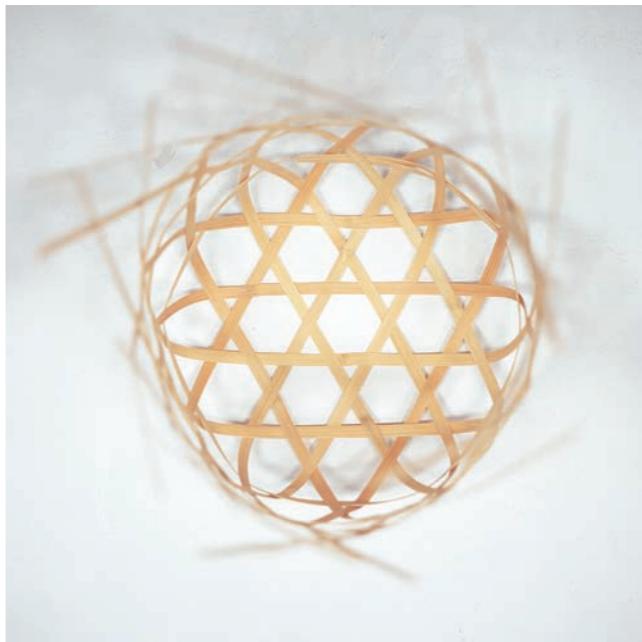
bamboo strips cast in concrete



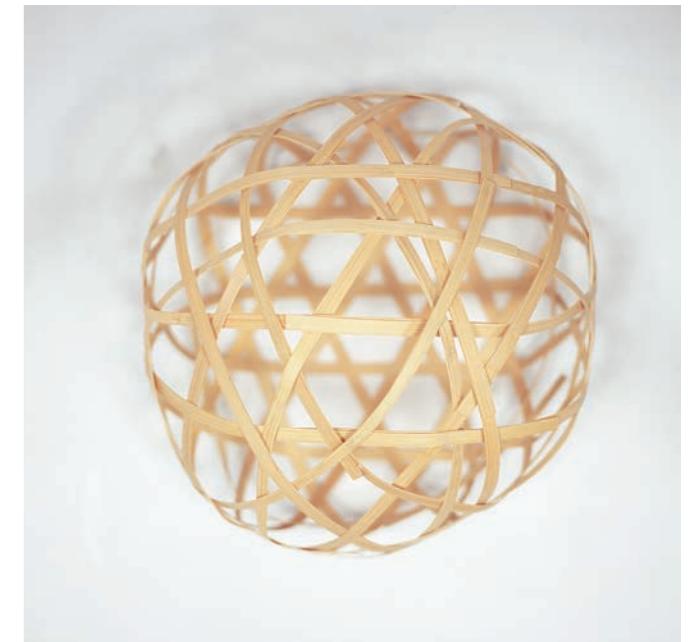
model of the weaved traditional Japanese Kagome pattern



the braiding pad prevents the bamboo strips from slipping aside



braided basket, elevation view



basket is closed by free braiding to a spherical shape, elevation view



completed braided prototype



braided basket, view



closing the basket by free braiding to the spherical shape, view

The traditional Japanese Kagome braid pattern provides the seat with additional stability and prevents the woven bamboo strips from slipping away. For closing the form, ends of the bamboo strips are brought together by a free braiding form and fixed with a rope knot.

The user can now decide whether to settle down in the firmer Kagome seat or preferring the more elastic, freely braided seat side.

The tamed bamboo bends to a comfortable seat that is braided with enough tension to carry a seated person.



# Foldagon

Tama Art University Tokyo

2019



Foldagon carried

Foldagon is a foldable structure for carrying objects. It consists out of three folding layers that prioritize the objects within. You never have to waste anymore a decision on what to grab next out of your bag, Foldagon already decided for you. Put your objects in the order in which you want to accomplish

them over the day and Foldagon reminds you of what to do next. After you open the first pocket the next one will show up and layer after layer will unfold. Minimize distraction by putting your cellphone in the last pocket and master discipline by putting your study book in the first one, you will also

never ever forget to put on your sun creme on the beach first before jumping into the water. Through the waterproof material, Foldagon can be used in many cases and can easily be hung up on the wall through the little hole to protect from dirty floors or to dry out after wet items.



# Foldagon





1. Study



2. Lunch break



3. Enjoy music



Foldagon placed



folding models



cutting models



Foldagon hang up

# Illustration



# Drawings

