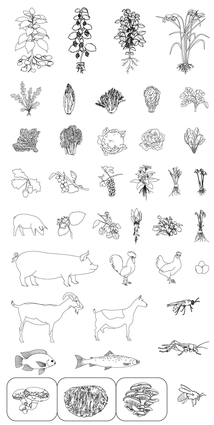
FUNGI FARM

LÉON SILDERHUIS



The fungi farm is a compact urban farm, specialized in the production of different types of mushrooms. Additional to the mushrooms a living packaging material is produced, made of the residue substrate the mushrooms grow on.

The fungi farm is a agricultural structure, made as a machine to produce mushrooms in the most productive way. By splitting and rearranging the steps in the process a lot can be automated. The substrate for the mushrooms to grow on in placed in the bottom from where a lift in structural central core, moves the fungi bags to there destined place. The bags hang in the black boxes until they're ready to be harvested. To make the most of the substrate, after the fungi process, they're made into living boxes to put the mushrooms in.

To make a self-sustaining fungi farm, the farm can produce:

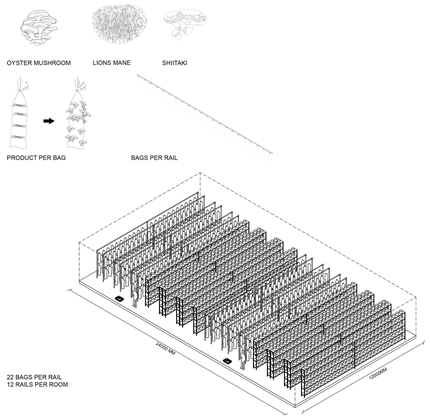
6600 kilograms of oyster mushrooms per 8 weeks.

2000 kilograms of lion's mane per 8 weeks.

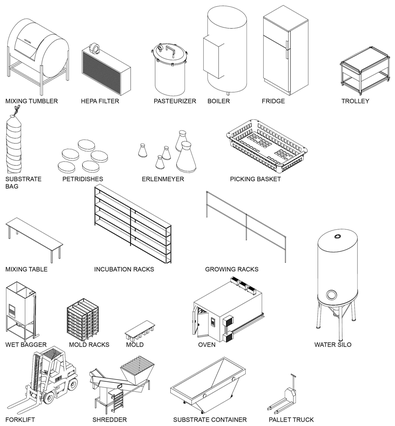
1800 kilograms of Shiitaki per 8 weeks.

This means 26000 kilograms of substrate are processed into packaging material.

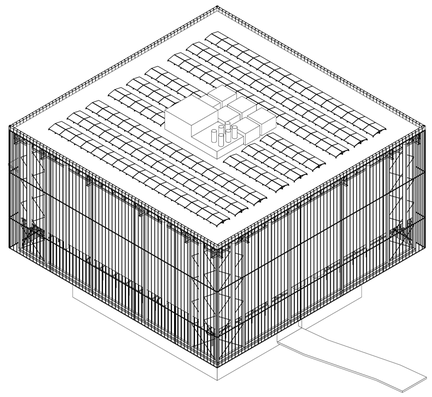
MENU



PRODUCTION FLOOR



TECHNOLOGY



ARCHITECTURE

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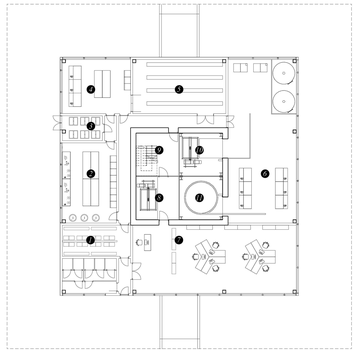
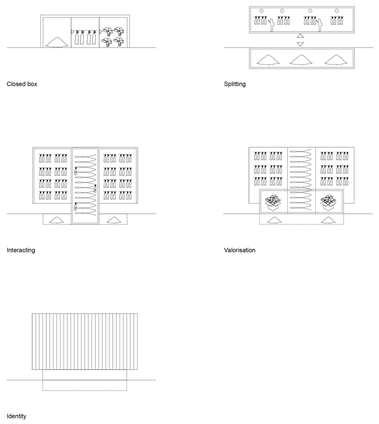


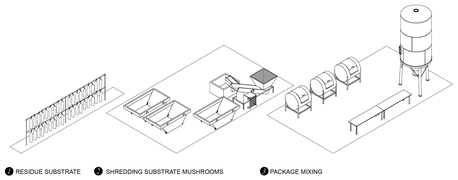
1 DRESSING ROOM
2 LABORATORIUM
3 GRAIN STORAGE
4 GRAIN SPAWN MIXING
5 GRAIN SPAWN INCUBATION ROOM
6 MUSHROOM MIXING ROOM
7 OFFICE
8 PLATEAU LIFT TO STORAGE
9 STAIRCASE
10 SUBSTRATE LIFT UP
11 CIRCLE LIFT BAGS UP

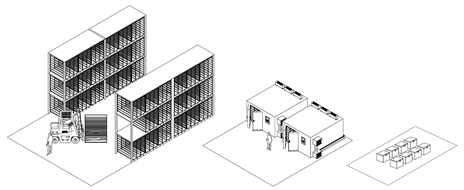
FLOOR PLAN 00

1 5

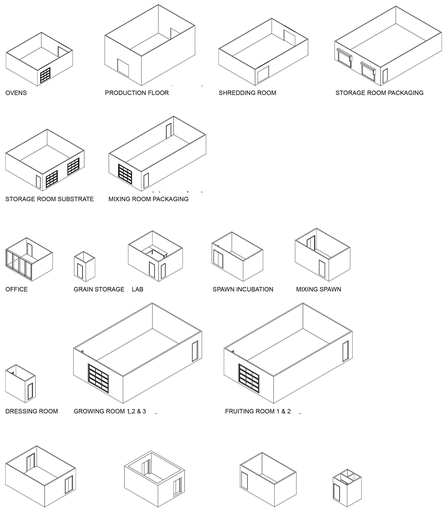


CONCEPT

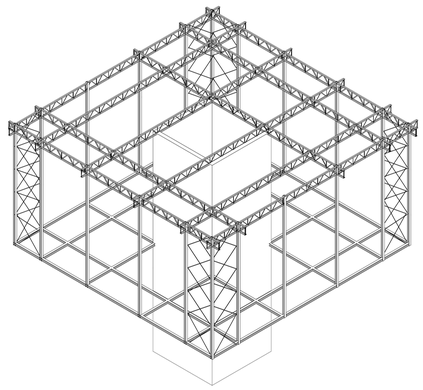




PRODUCT SYNERGY



PROCESSING & PACKAGING



STRUCTURE

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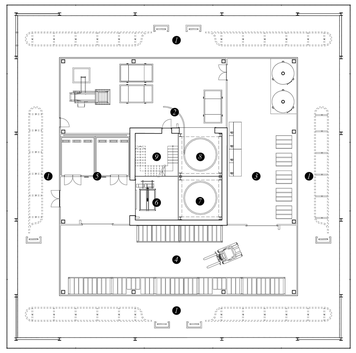
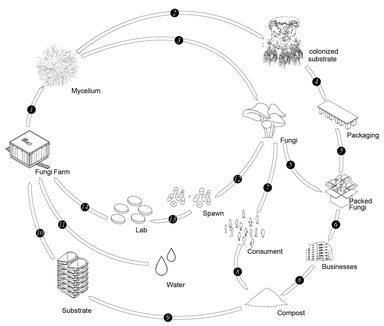


1 MUSHROOM PICKING CHAMBER
2 SUBSTRATE SHREDDING ROOM
3 MIXING INTO MOLD
4 PACKAGE GROWING ROOM
5 OVENS
6 PLATEAU LIFT TO STORAGE
7 CIRCLE LIFT BAGS UP
8 CIRCLE LIFT BAGS DOWN
9 STAIRCASE

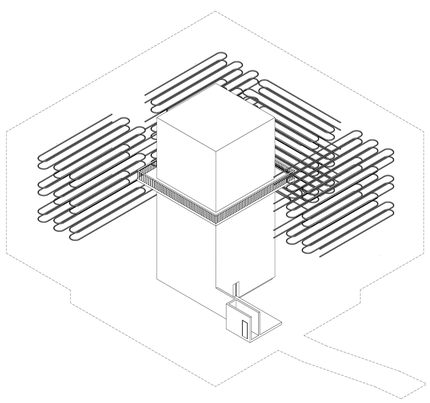
FLOOR PLAN 01

1 5



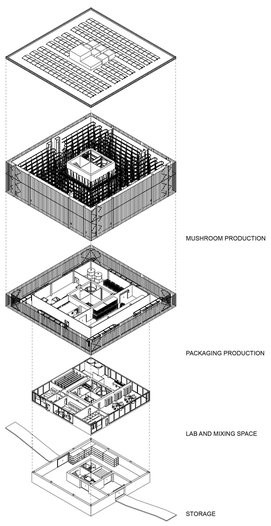
1 CONDITIONS GROWING FOR MYCELIUM
2 MYCELIUM COLONIZES SUBSTRATE
3 MYCELIUM PRODUCES MUSHROOMS
4 COLONIZED SUBSTRATE CONVERSED TO PACKAGING
5 VALORISATION PRODUCTS
6 PRODUCTS SOLD TO BUSINESSES
7 MUSHROOMS SOLD TO CONSUMERS
8 COMPOST USED WASTE
9 COMPOST CONVERSED TO SUBSTRATE
10 FOUNDATION FOR MYCELIUM
11 RAINWATER USED FOR GROWING MUSHROOMS
12 FUNGI GIVES SPAWN
13 SPAWN CULTIVATED ON AGAR
14 INCUBATION SPAWN INTO BASIC MYCELIUM

CIRCULARITY



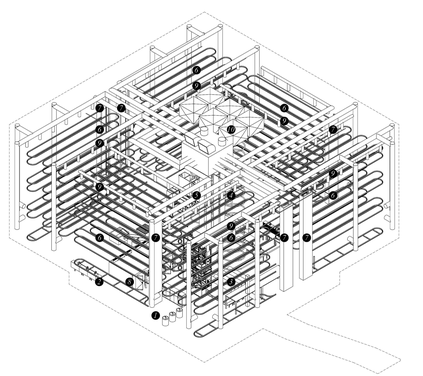
AGRI-CULTURE

1 10



THE COMPACT MODEL

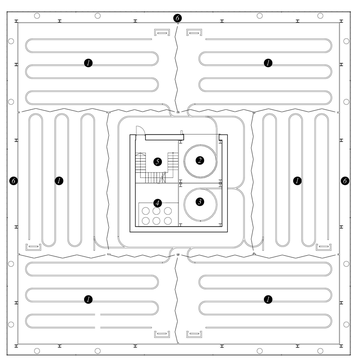
2 20



1 SPAWN INOCULATION
2 HEPA FILTER FLOW SPAWN
3 PASTEURIZING (BEHIND)
4 CIRCLE LIFT BAGS UP (BEHIND RAILS)
5 CIRCLE LIFT BAGS DOWN (BEHIND RAILS)
6 RAILSYSTEM GROWING BAGS
7 VERTICAL CONVEYORBELT
8 MOLD OVENS
9 HUMIDITY SYSTEM
10 VENTILATION SYSTEM

INFRASTRUCTURE

1 10



1 MUSHROOM GROWING ROOM
2 CIRCLE LIFT BAGS DOWN
3 CIRCLE LIFT BAGS UP
4 TECHNICAL ROOM (VENTILATION)
5 STAIRCASES
6 2ND FACADE NATURAL VENTILATION

FLOOR PLAN 02

1 5