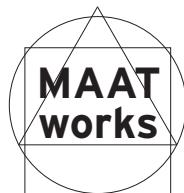


**imagine**  
**“you may say I'm a dreamer**  
**but I'm not the only one”**

**john lennon**

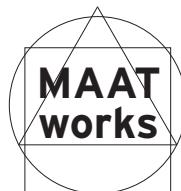
**dreams**

**architecture**



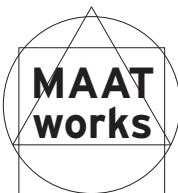
# **responsibility**

# **architecture**



**dreams**

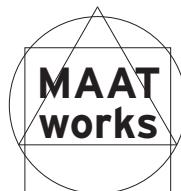
**to build**



**18/10/2018  
egurtek bilbao**

**biobased family homes**

**lidewij lenders MSc**



# MAATworks is a partnership of:



Lidewij Lenders MSc  
architect / urban designer  
based in Amsterdam

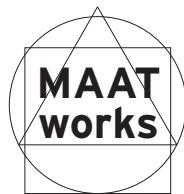


Marije ter Steege MSc  
architect based in Amsterdam  
8 years experience at Cruz y Ortiz Arquitectos  
in Sevilla and Amsterdam before MAATworks

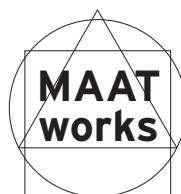
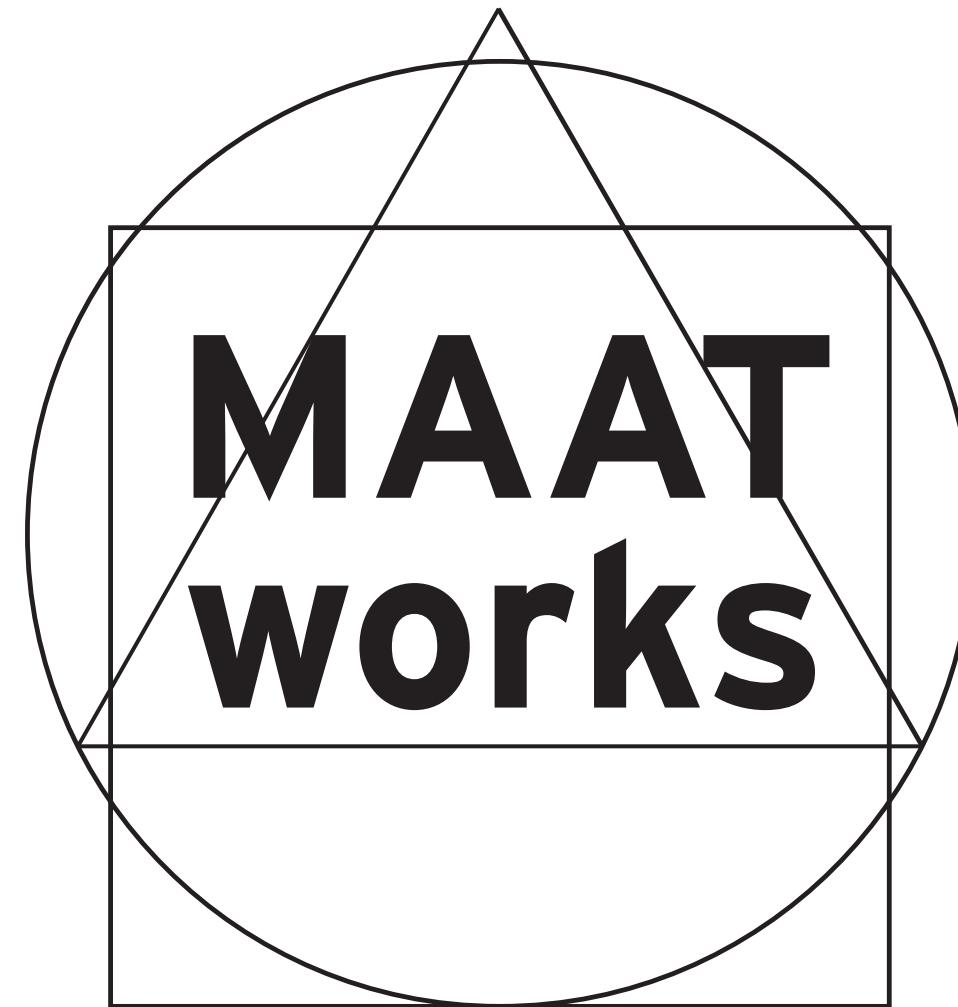


Sonja Spruit MSc  
architect based in Cairo  
consultant international development  
urban planning & housing

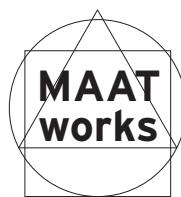
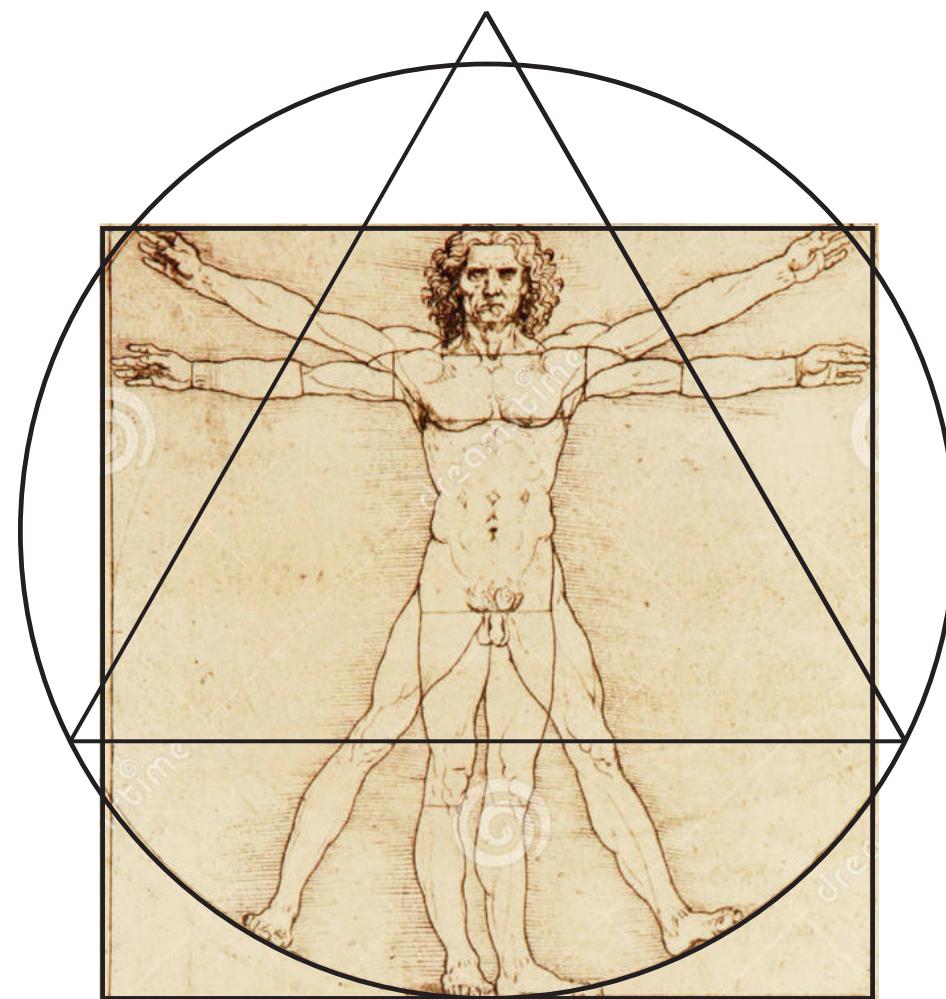
## based in:



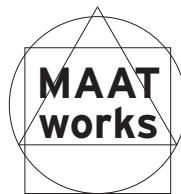
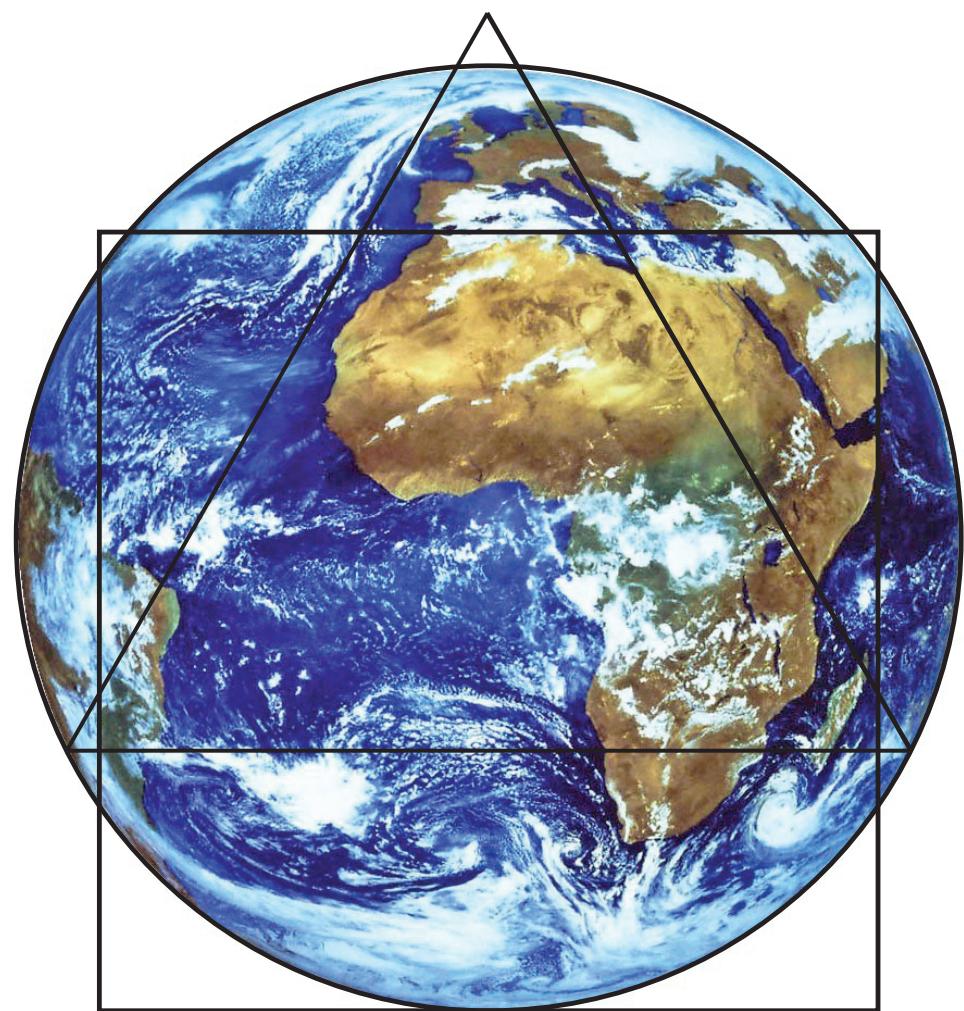
**MAATworks manifests the ideals of a fair and sustainable society**



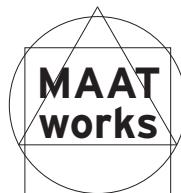
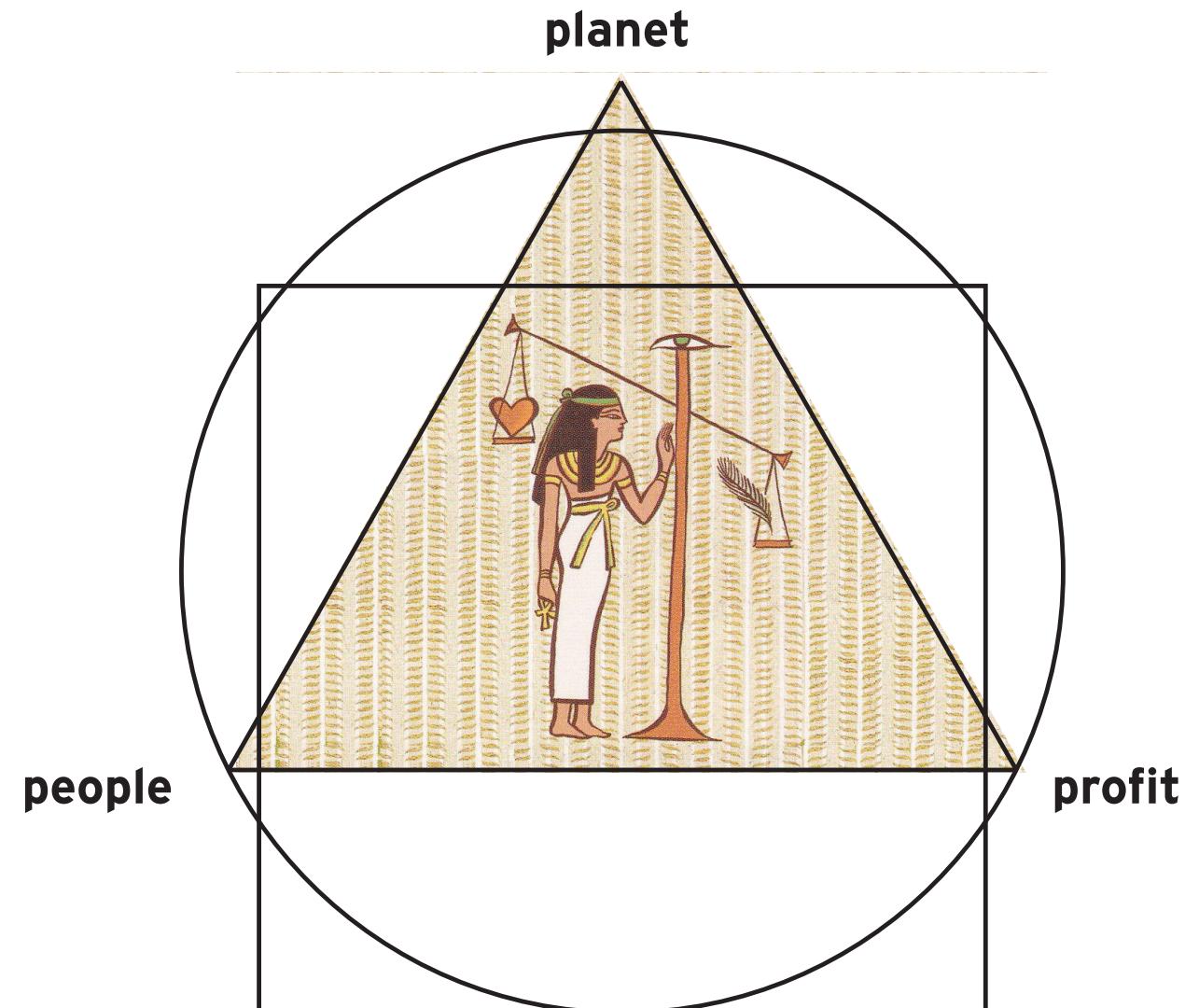
# people, human scale, right proportions

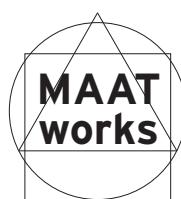
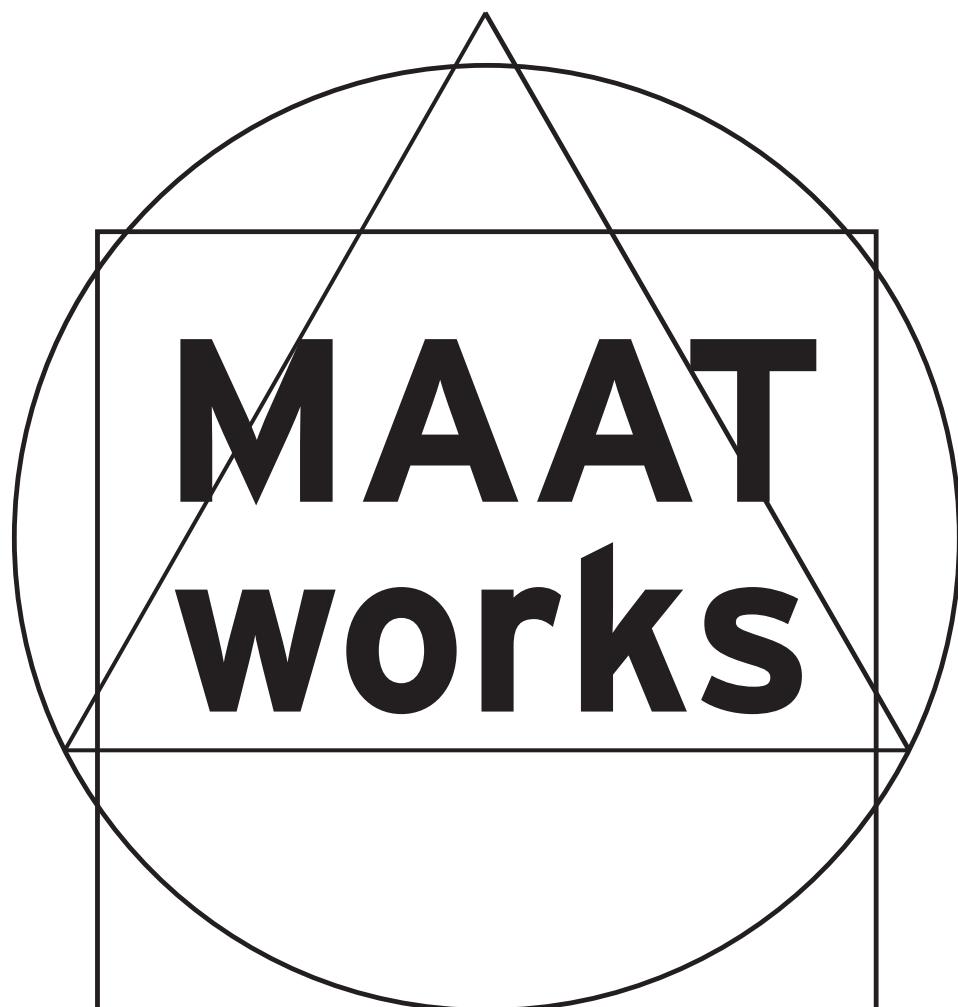


# **consciousness of our planet**

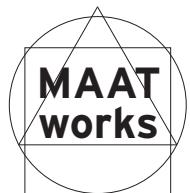


# **balance, equality**

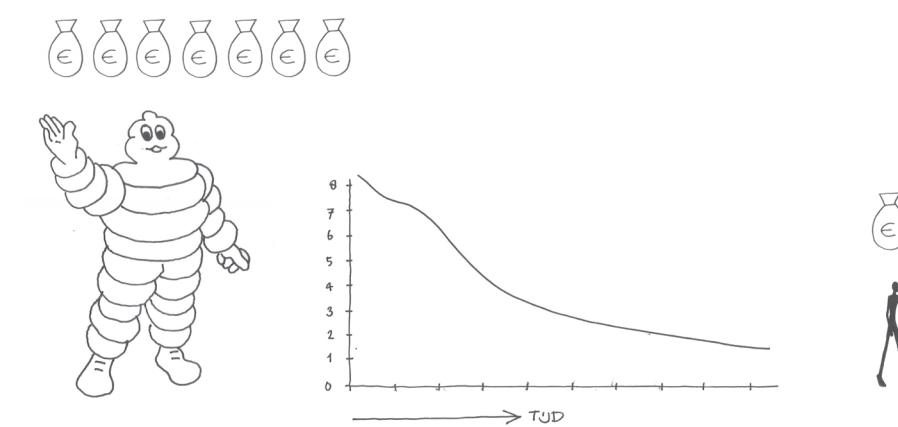




**works:**



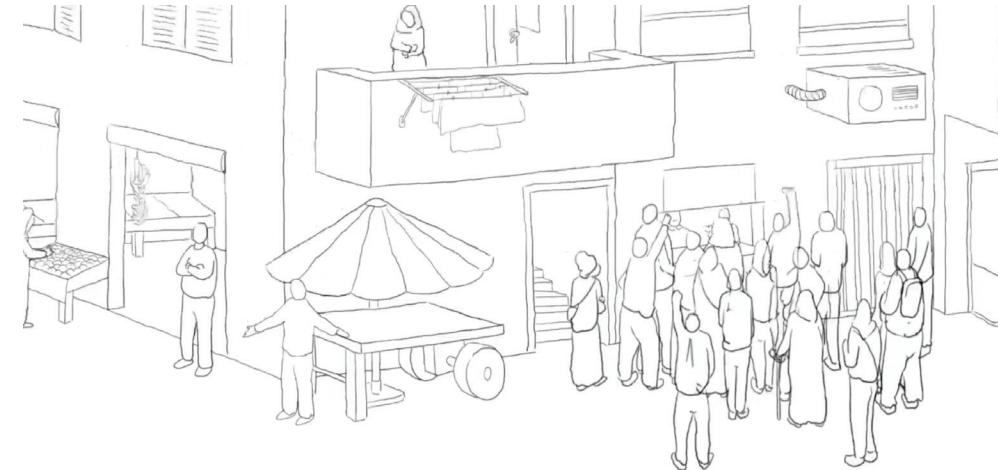
## research



## architecture



## urban planning



# **biobased familyhomes**

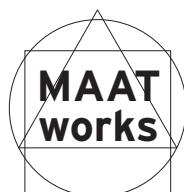
**nature of materials**

**nature of human**

**a personal story - my own house**

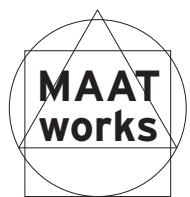
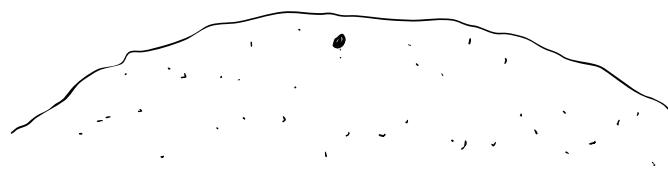
**projects**

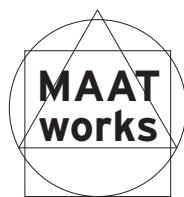
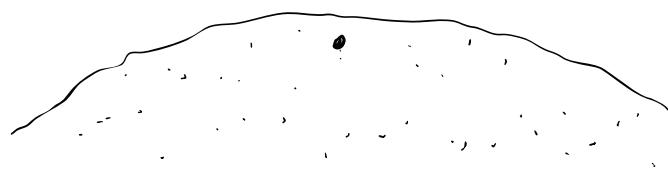
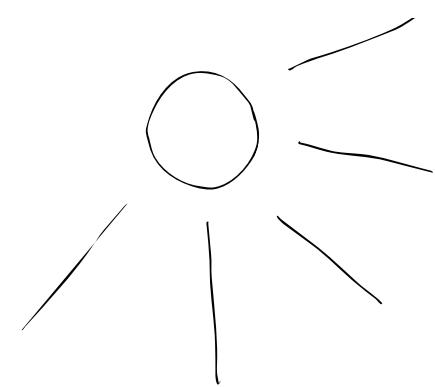
**does it make a difference?**

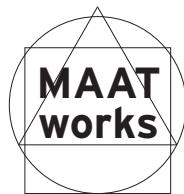
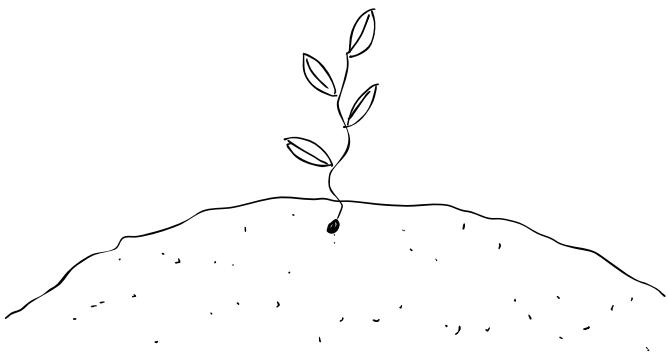
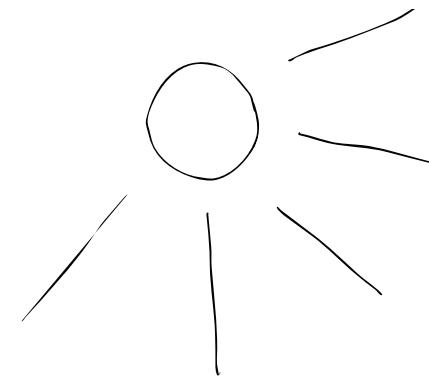


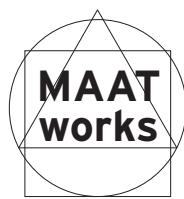
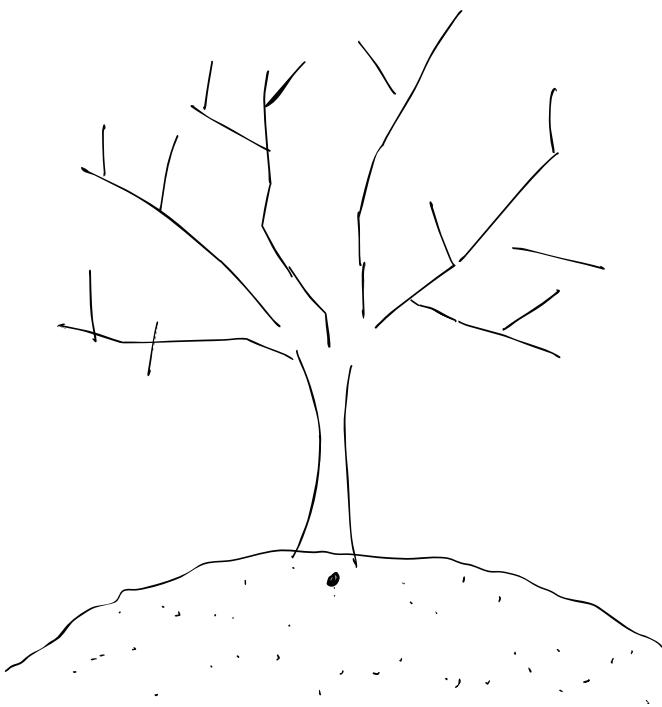
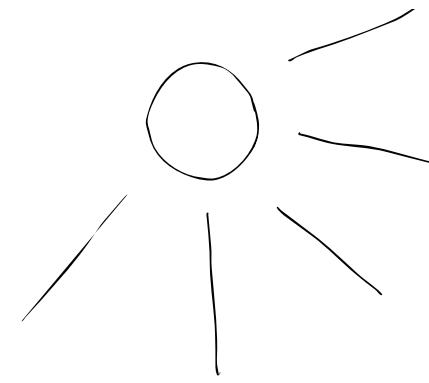
A photograph of a dense forest of tall evergreen trees, likely pine or fir, standing in a grid-like pattern. The trees are dark green and reach towards a clear blue sky. The forest floor is visible at the bottom.

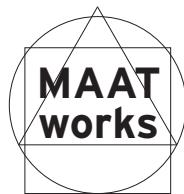
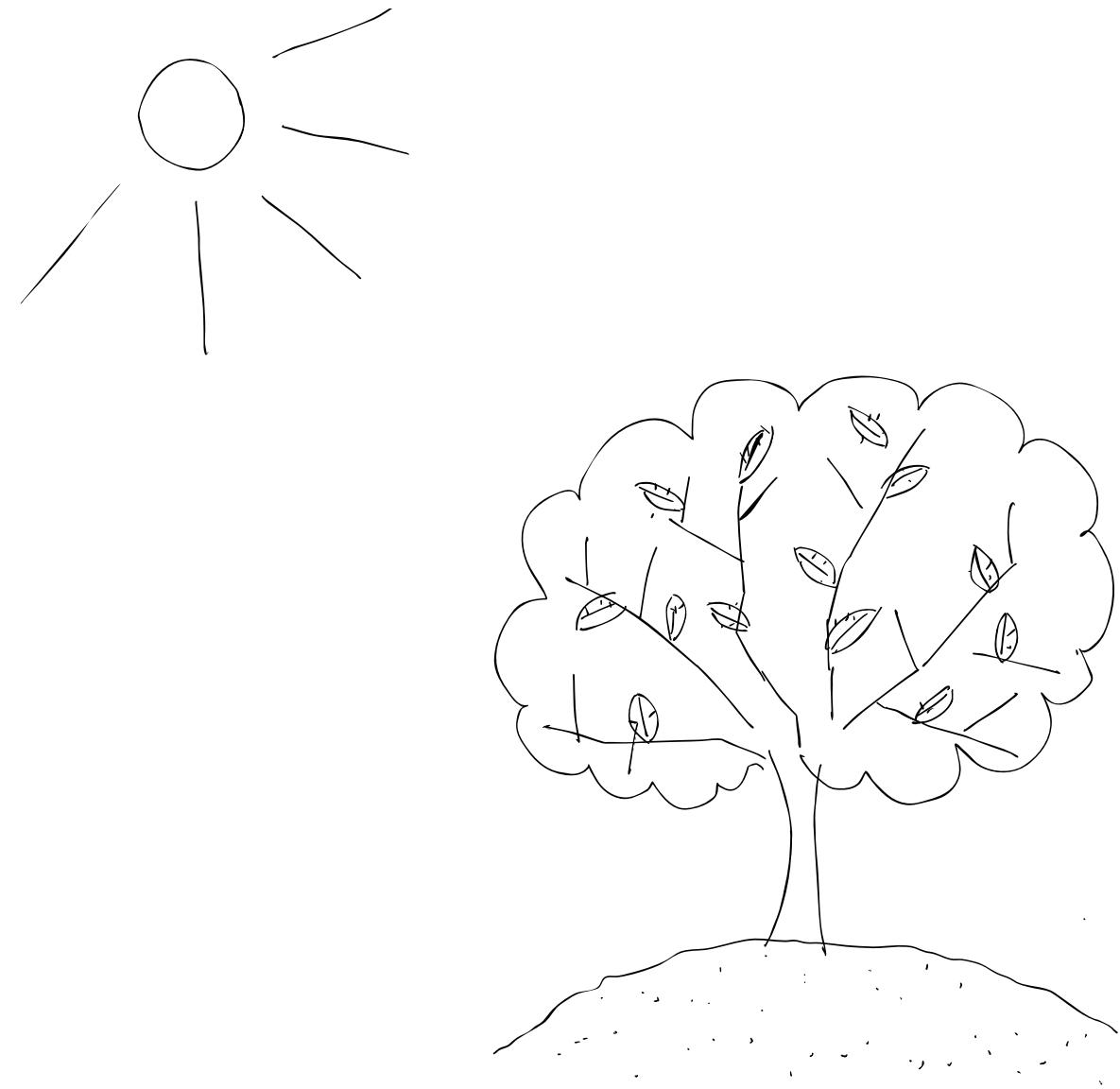
# nature of materials

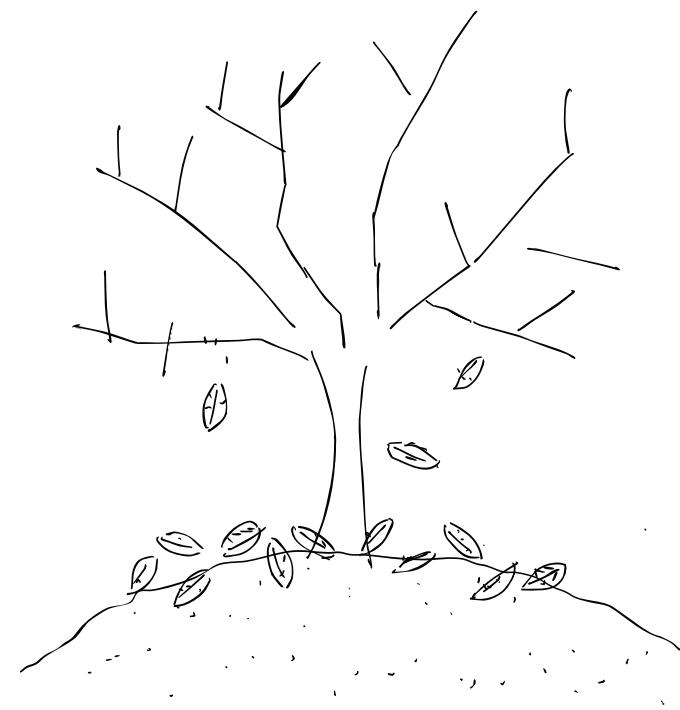
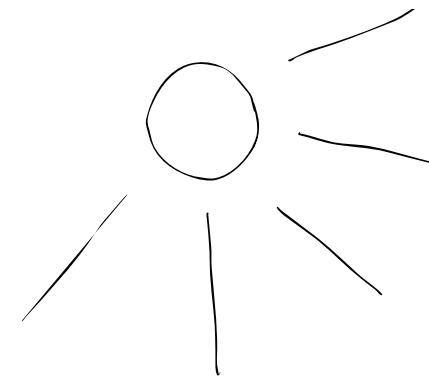


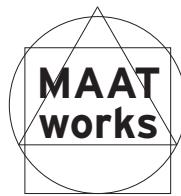
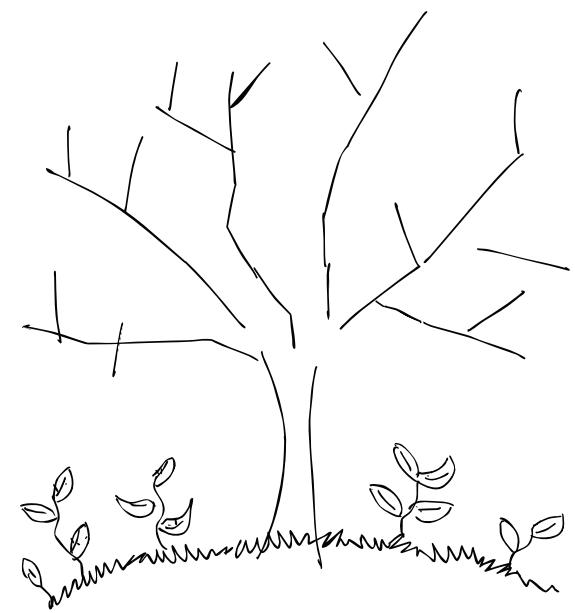
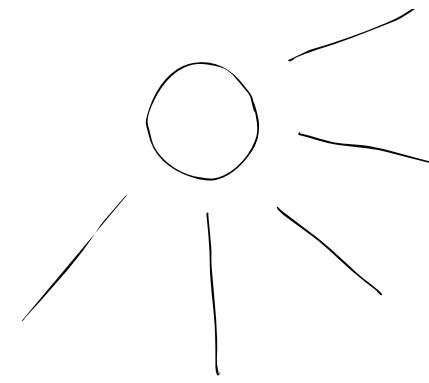


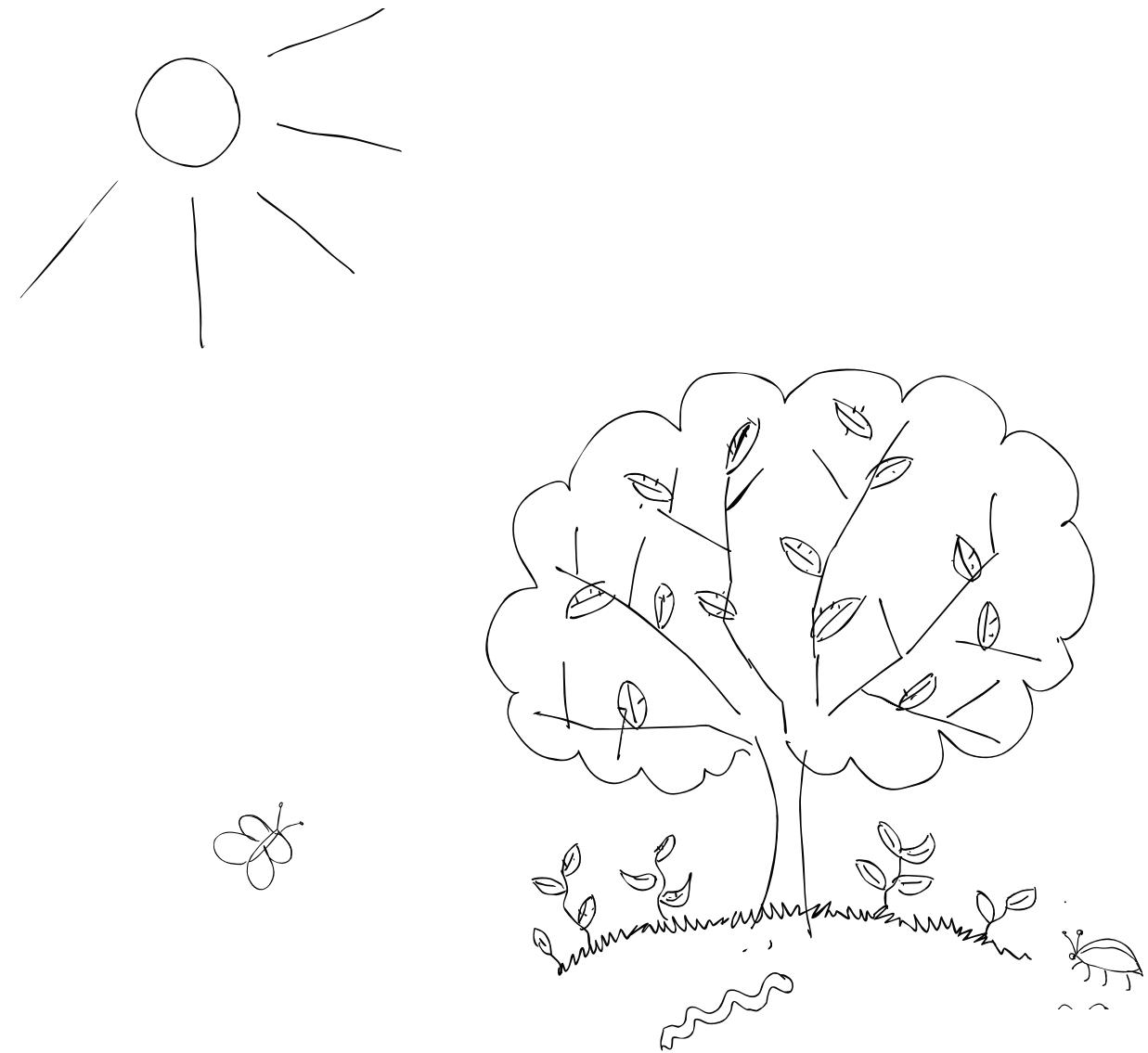




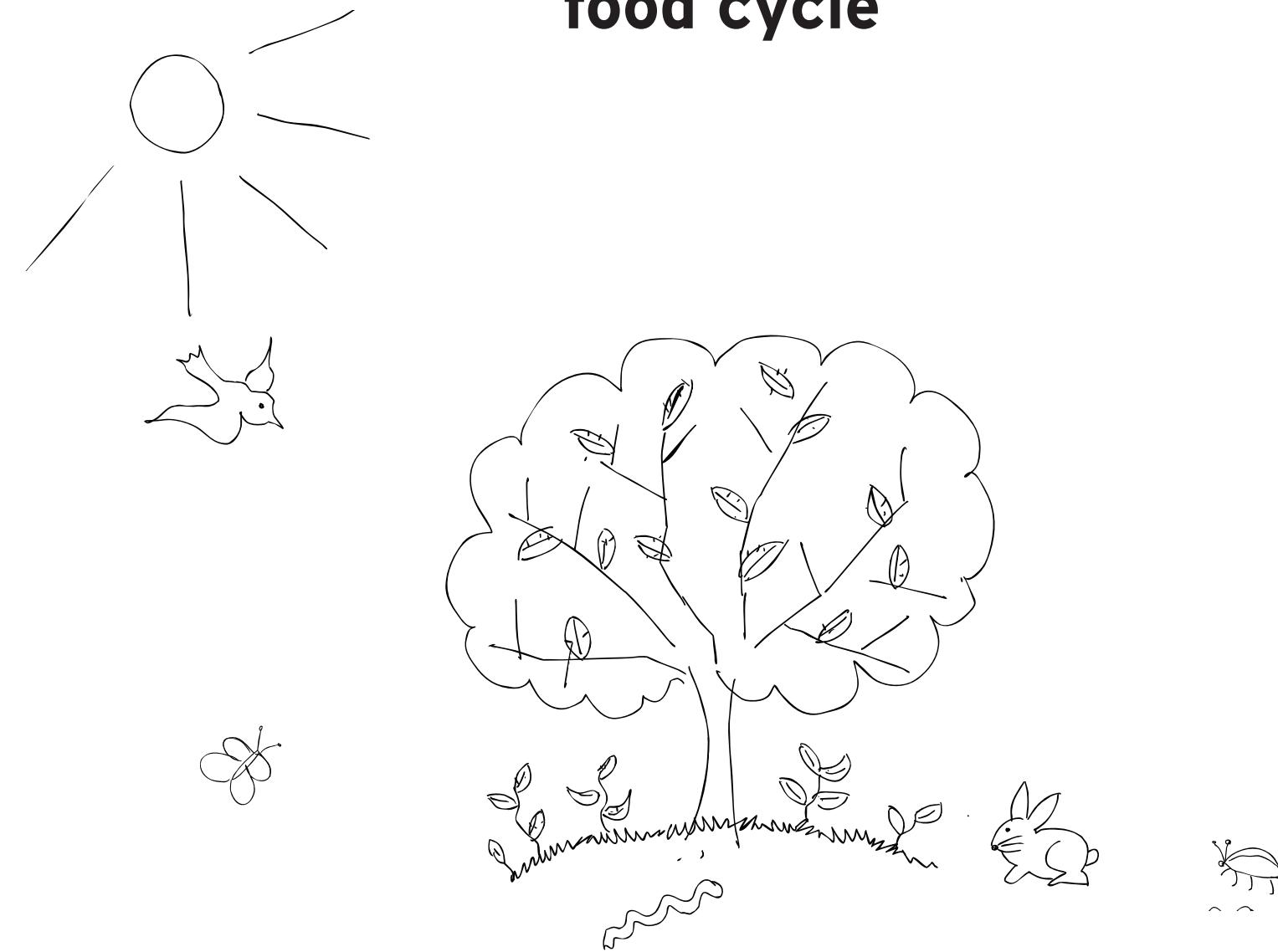




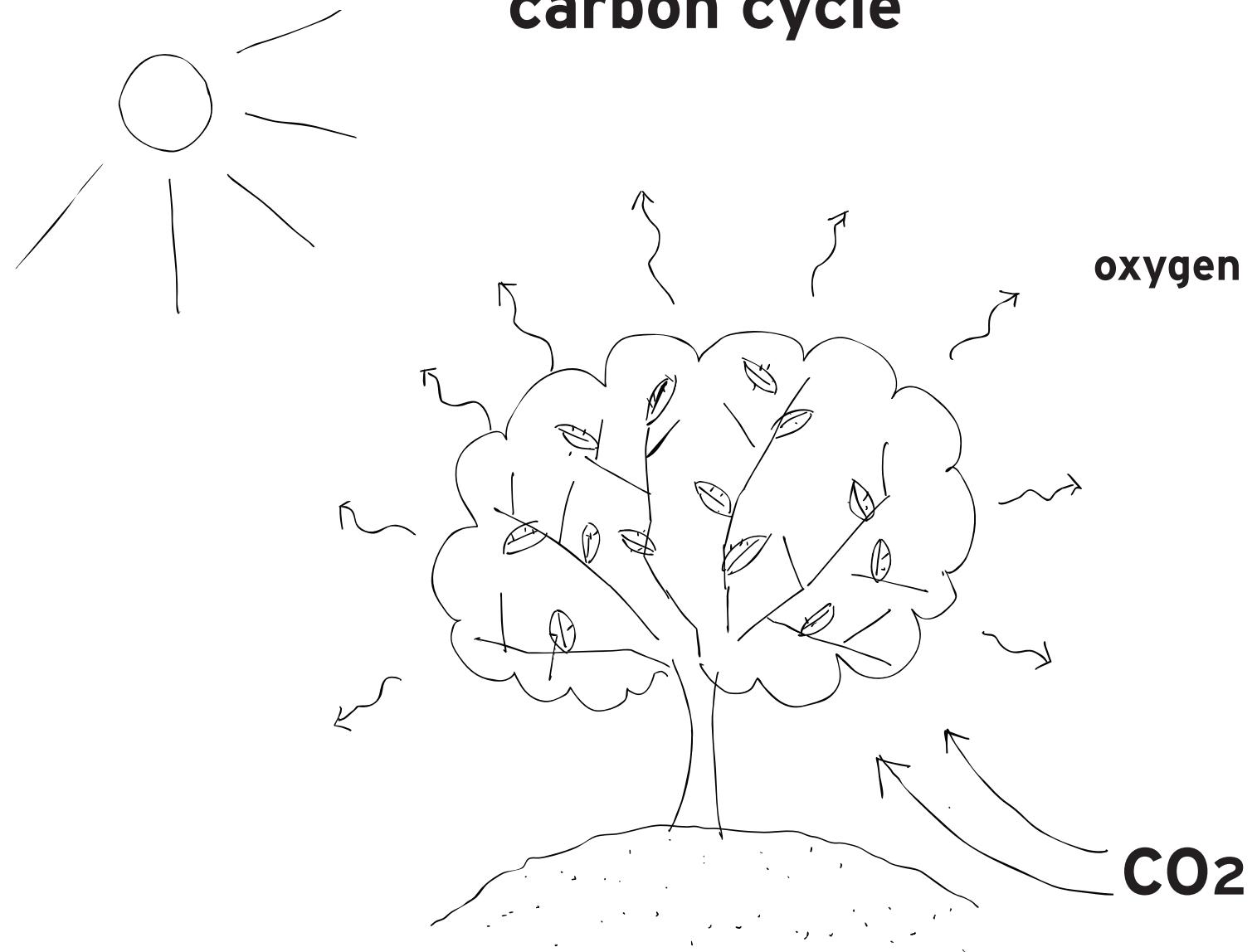




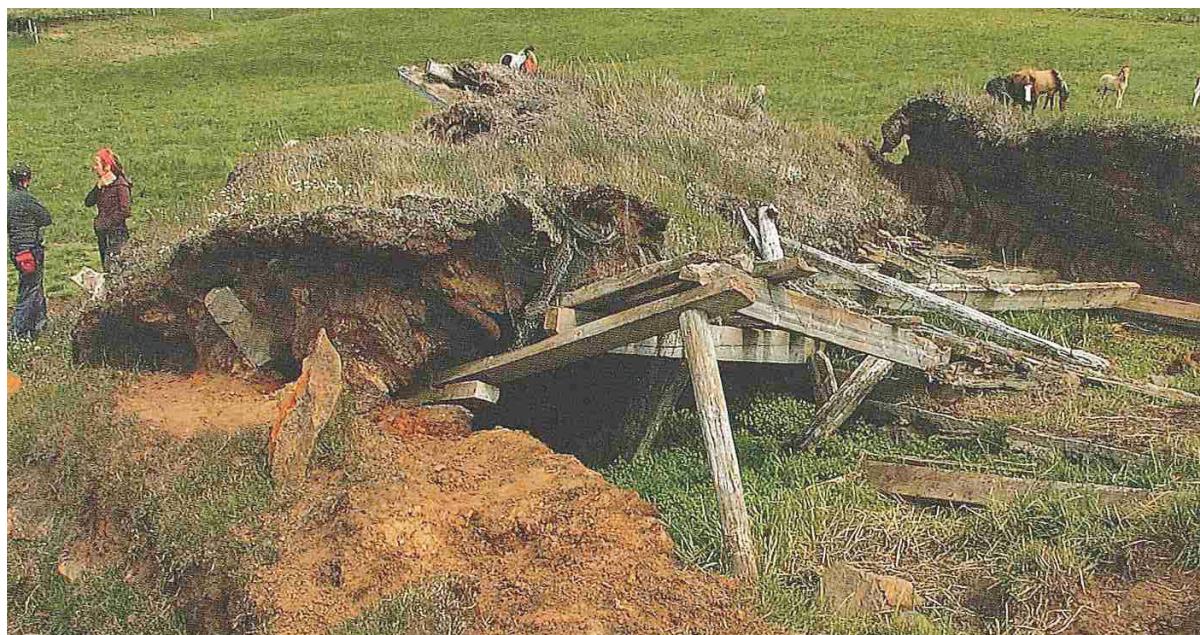
# food cycle



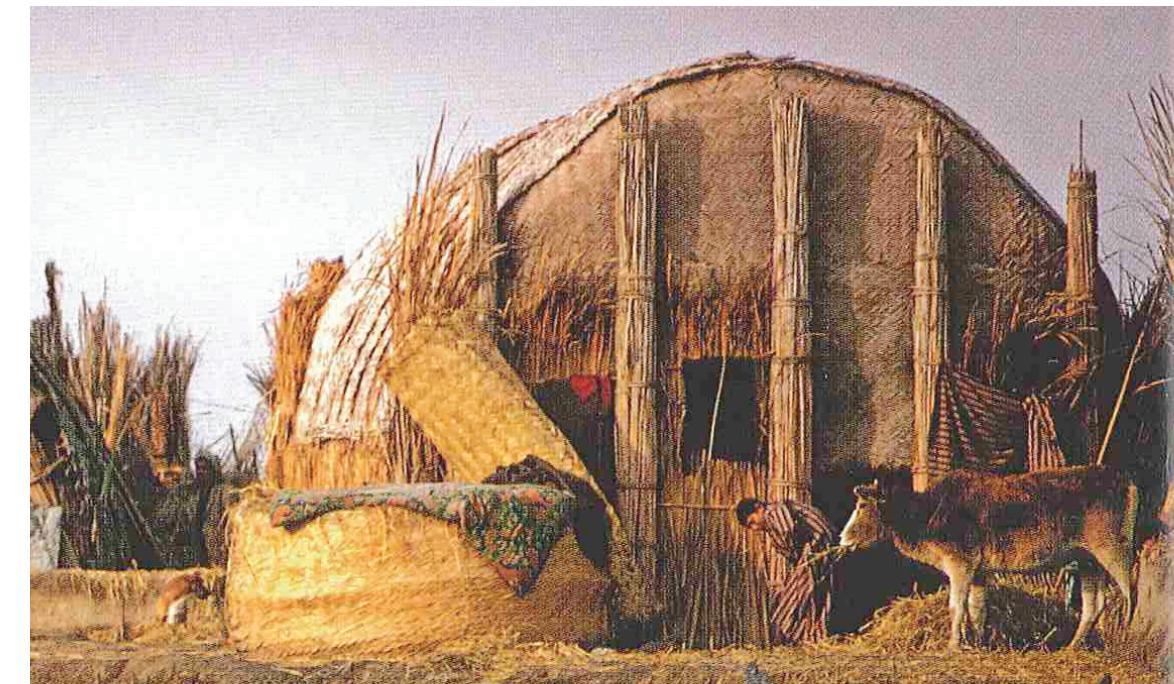
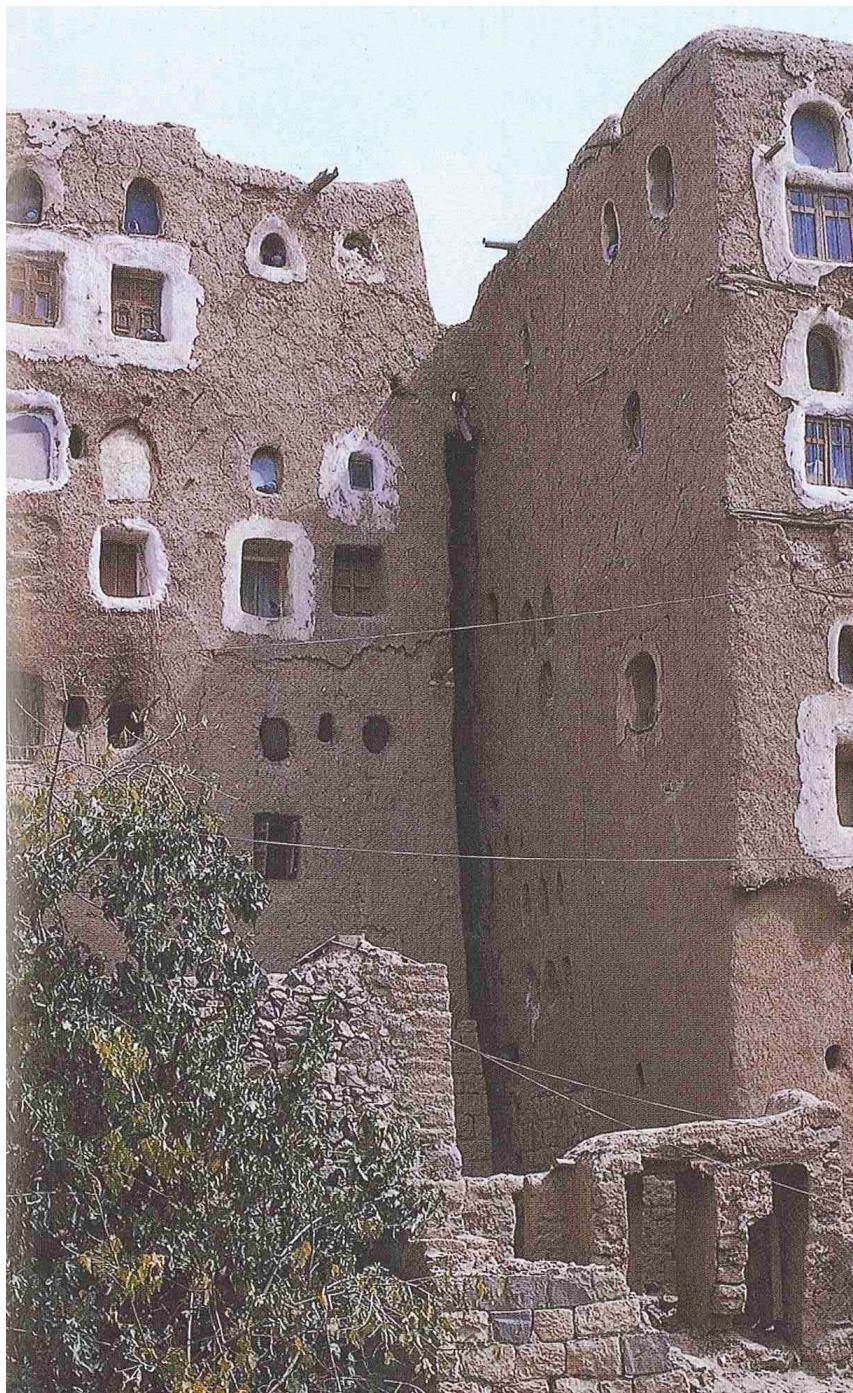
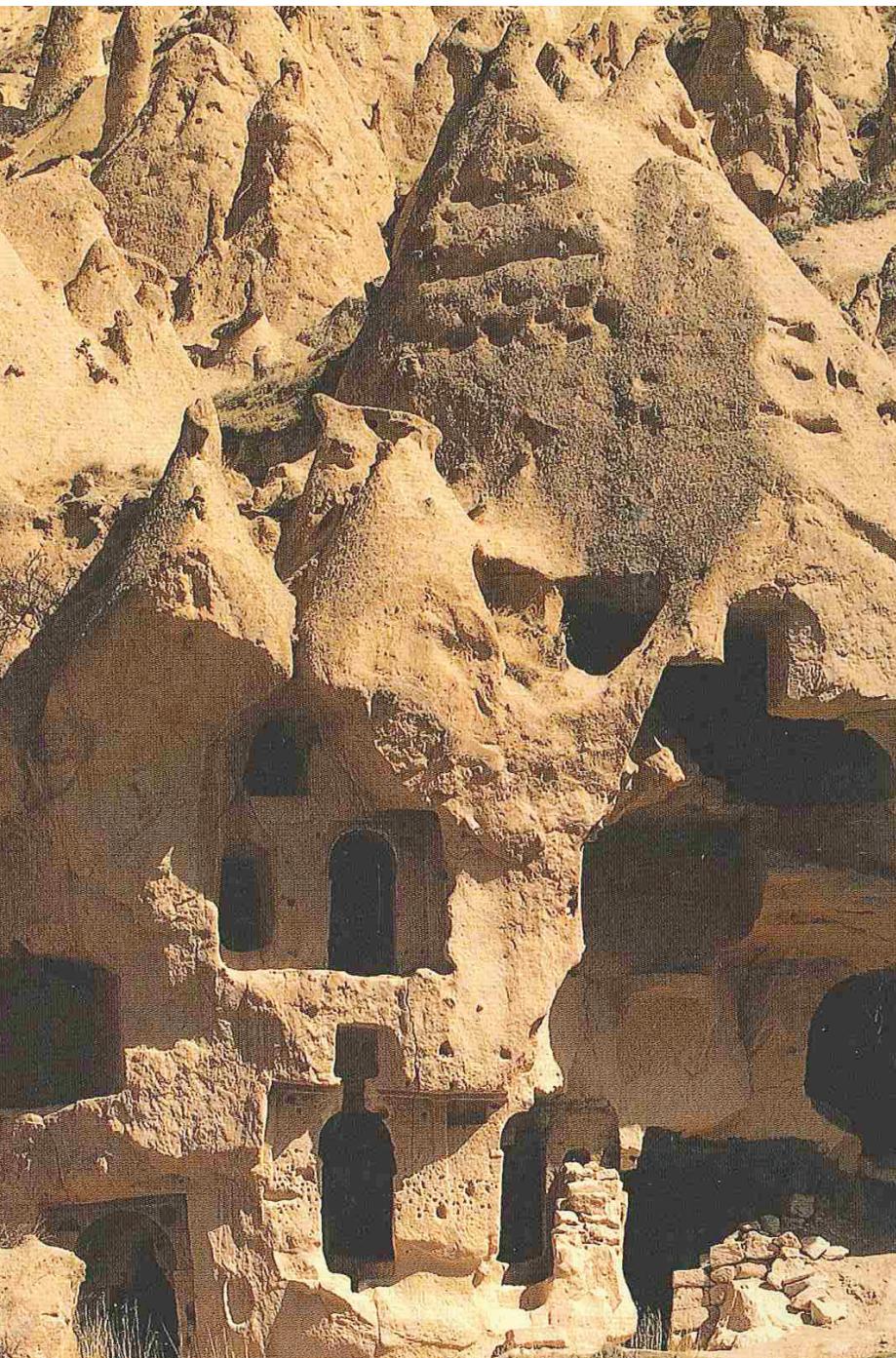
# **carbon cycle**



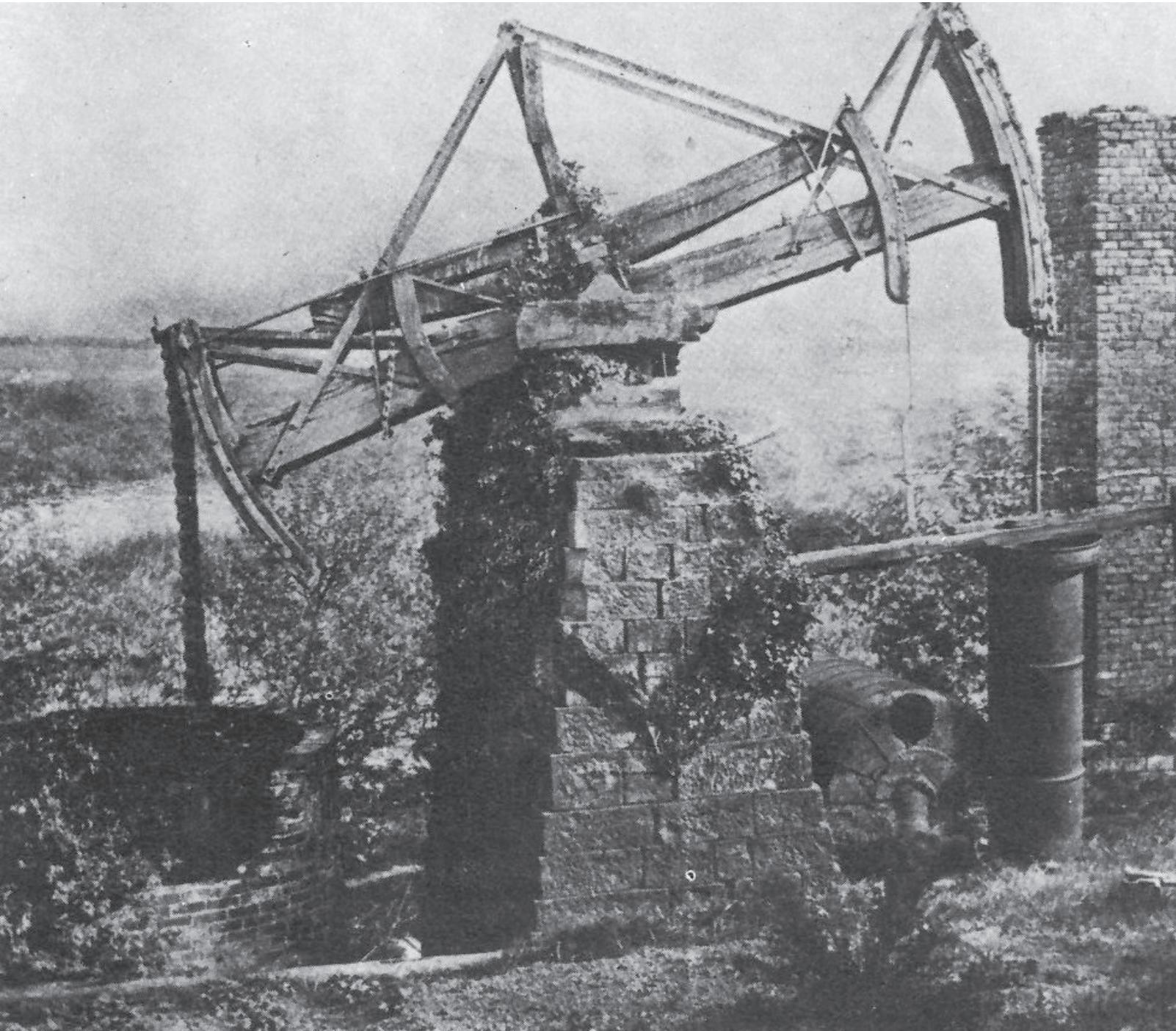
# The Netherlands, 150.000 years ago



# utilisation of local materials



# industrial revolution



> progress

raw materials like  
coal and oil enabled

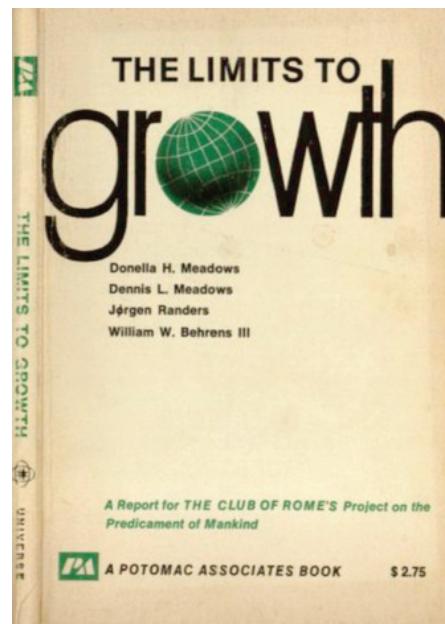
new materials  
new technologies  
more prosperity  
more comfort  
more hygiene  
better medicine  
etc.

# but it has a downside

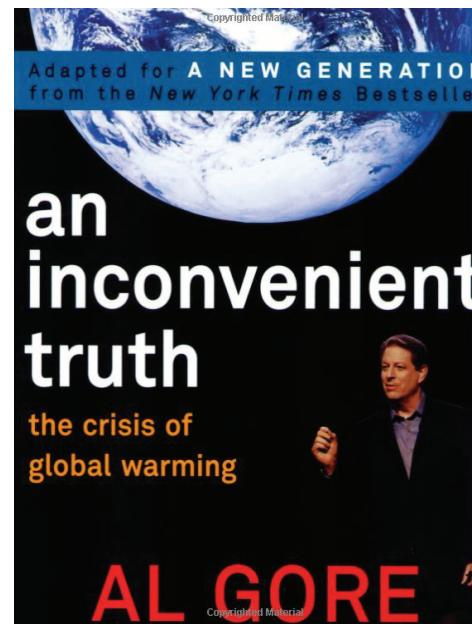


# wake up calls

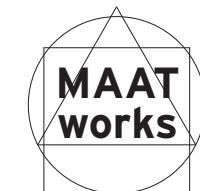
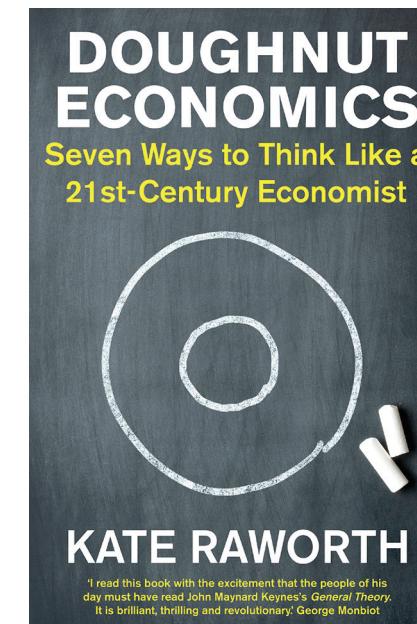
1972  
the club of Rome



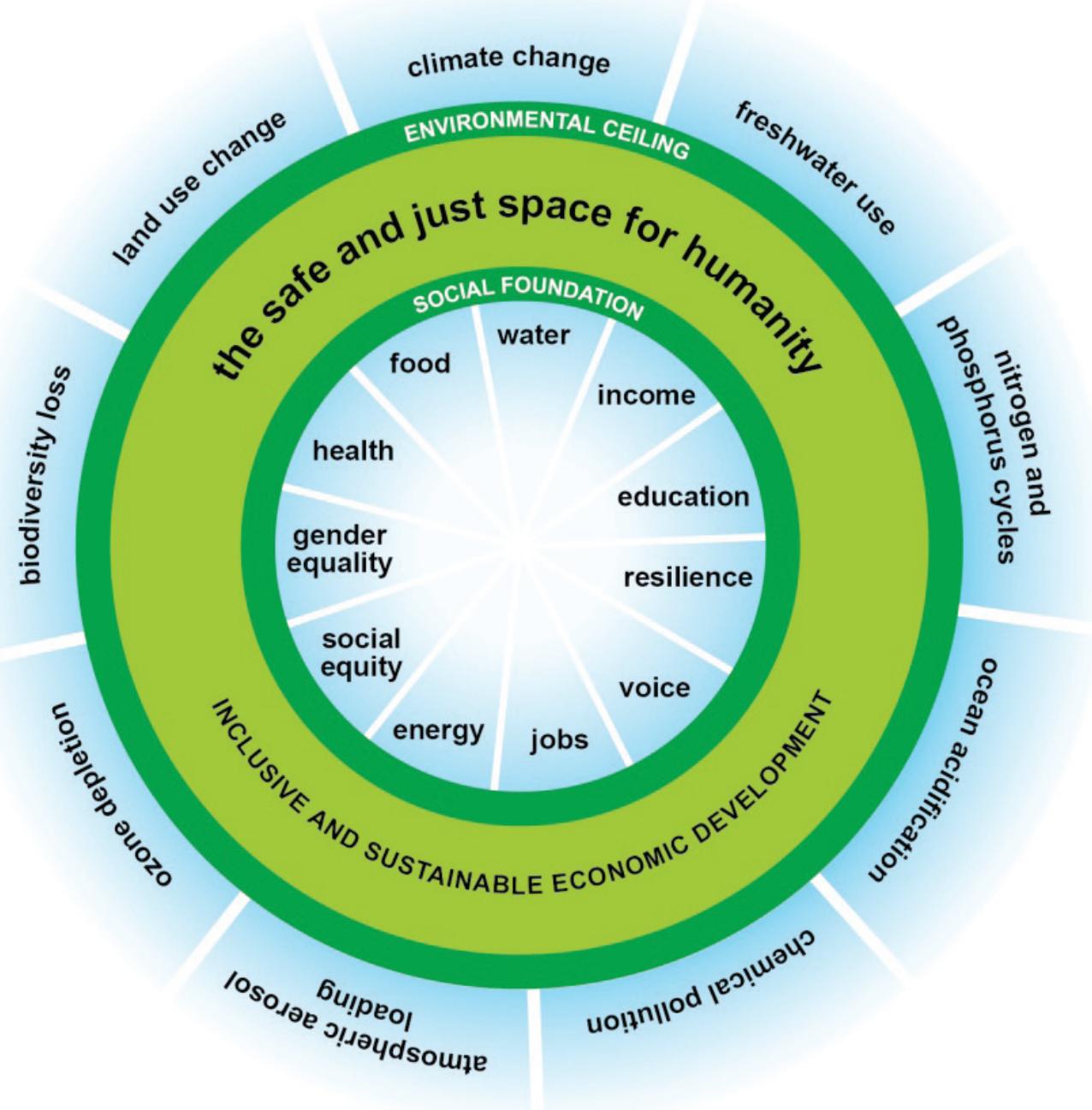
2006  
Al Gore



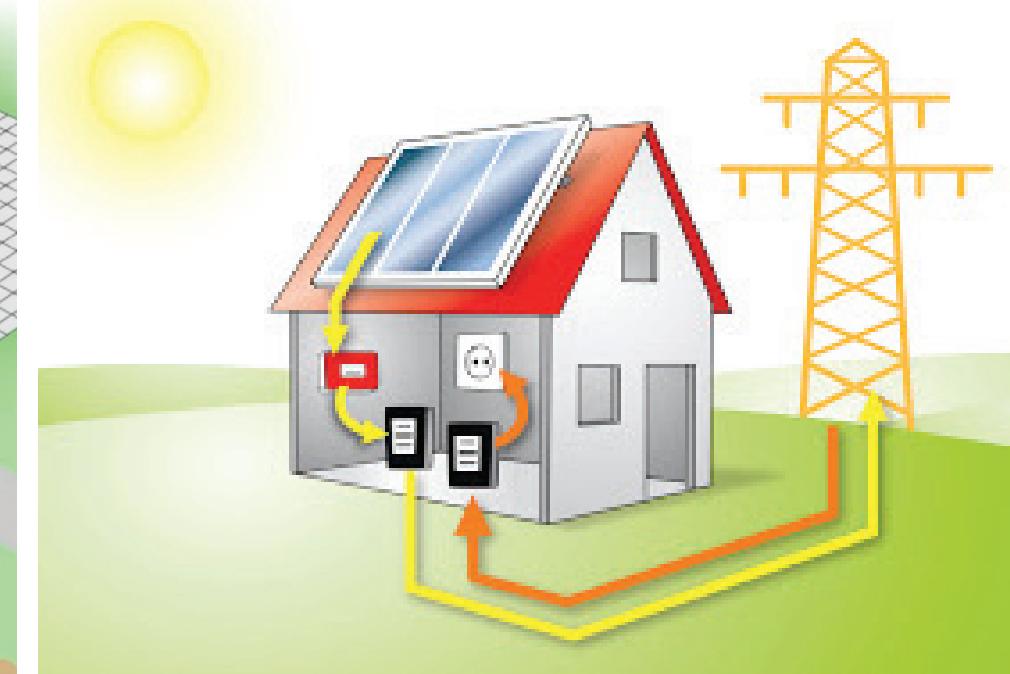
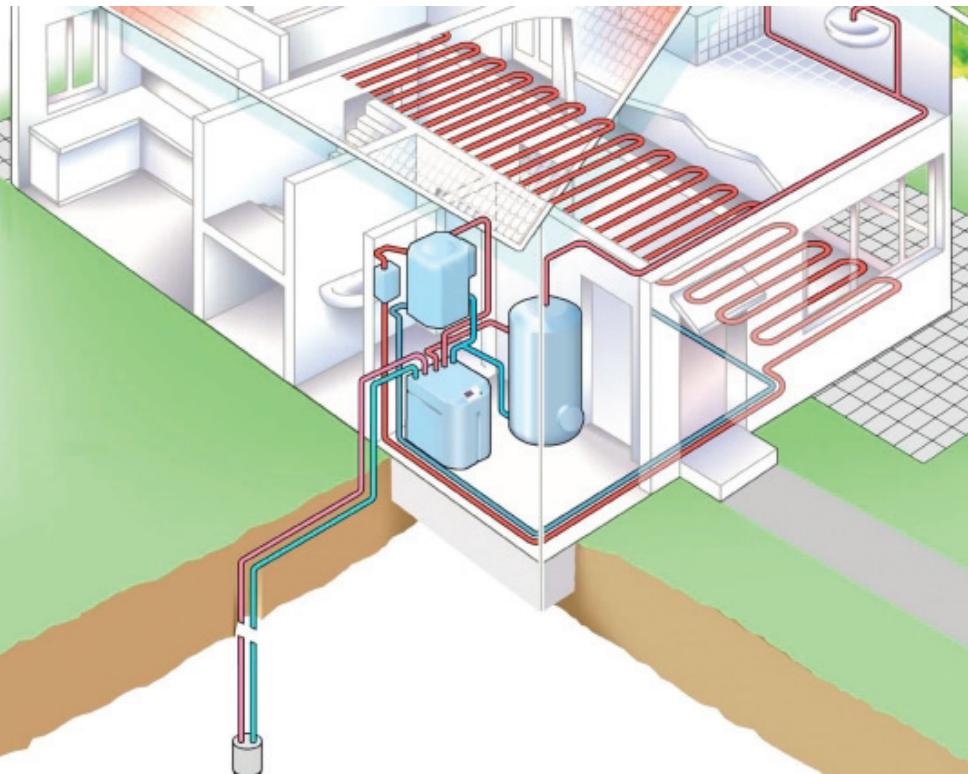
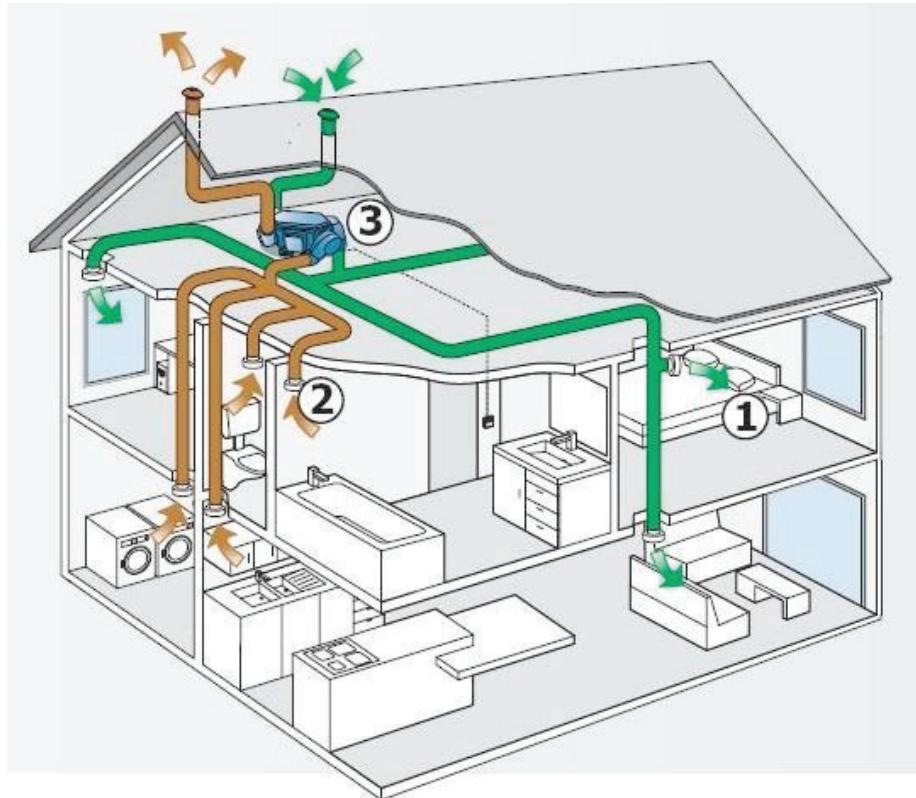
2017  
Kate Raworth



# doughnut economics



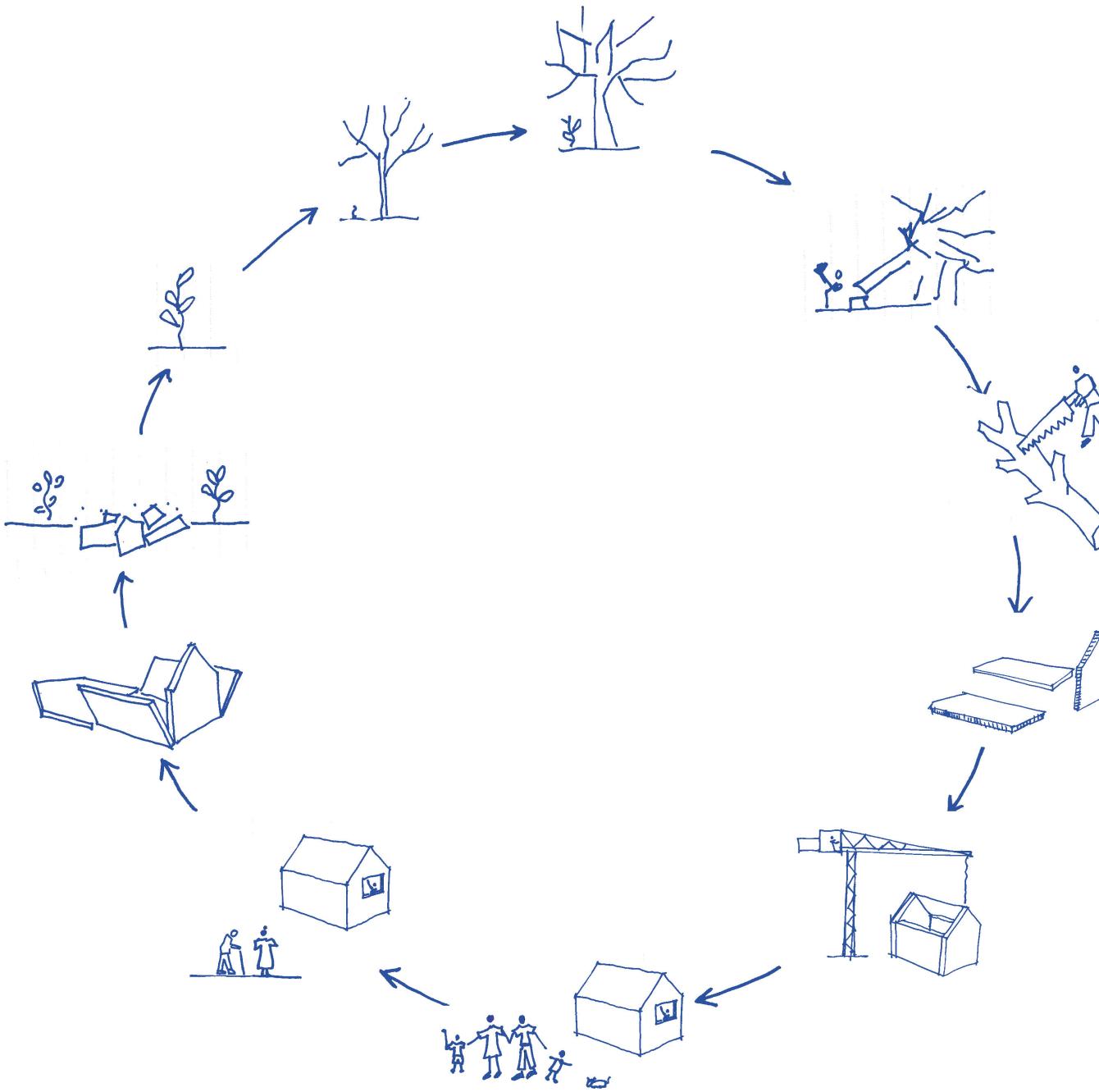
# energy measures in housing



**building industry produces 35% of total waste**

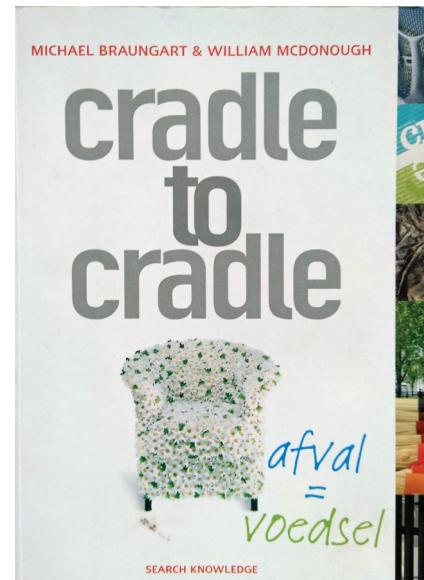


# biobased materials - natural cycle - circular

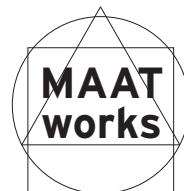


# Michael Braungart & William McDonough

2007



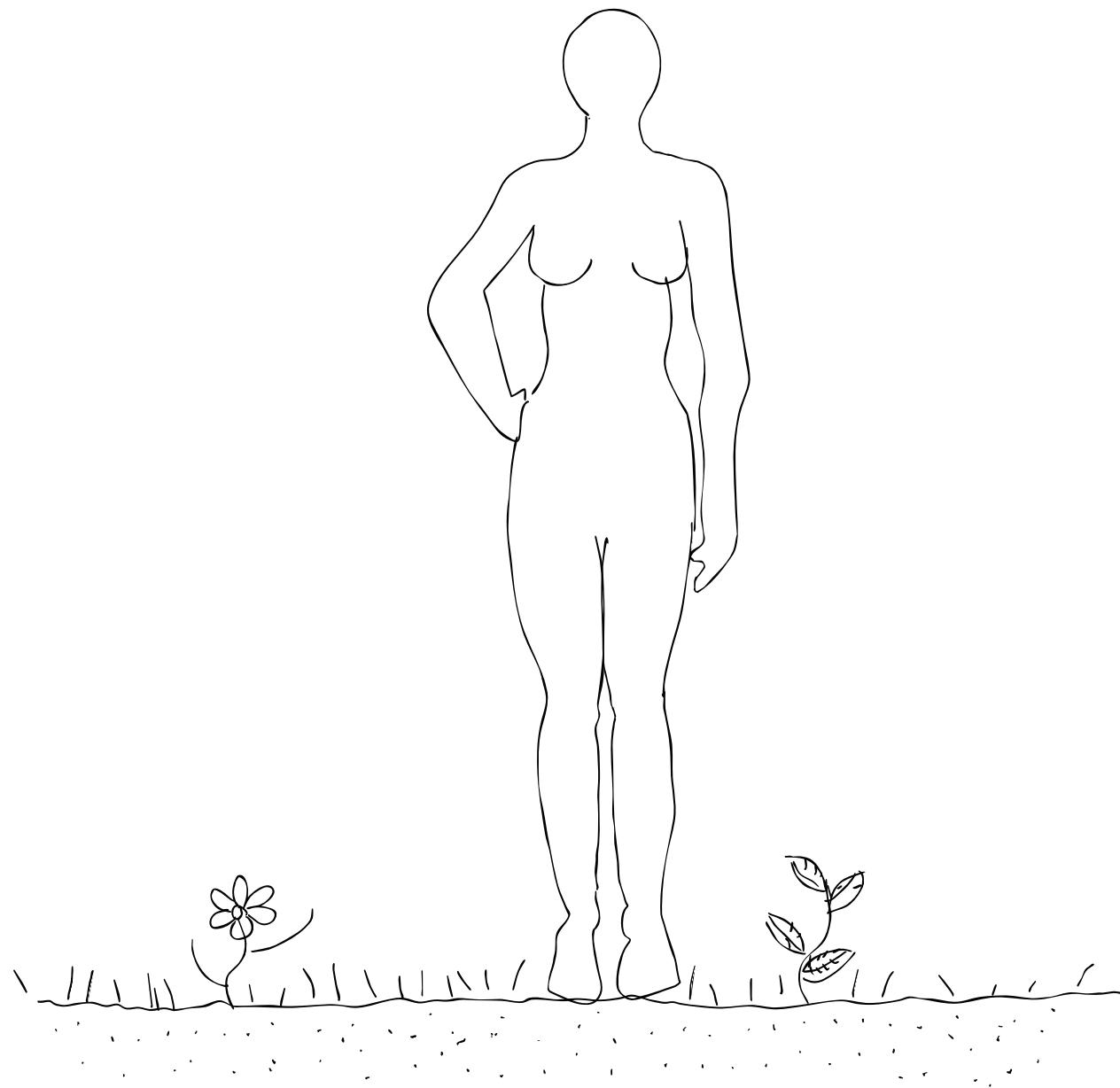
**“Imagine a world in which all the things we make, use, and consume provide nutrition for nature and industry – a world in which growth is good and human activity generates a delightful, restorative ecological footprint.”**



A photograph capturing a dense crowd of people walking on a city street. The scene is filled with individuals of various ages and ethnicities, all moving in the same direction. In the background, there are buildings, a bus stop labeled "Sain-Lazare", and a sign for "CORAIL". The overall atmosphere is one of a busy urban environment.

# nature of humans

# **biological factors determine our behaviour and wellbeing**



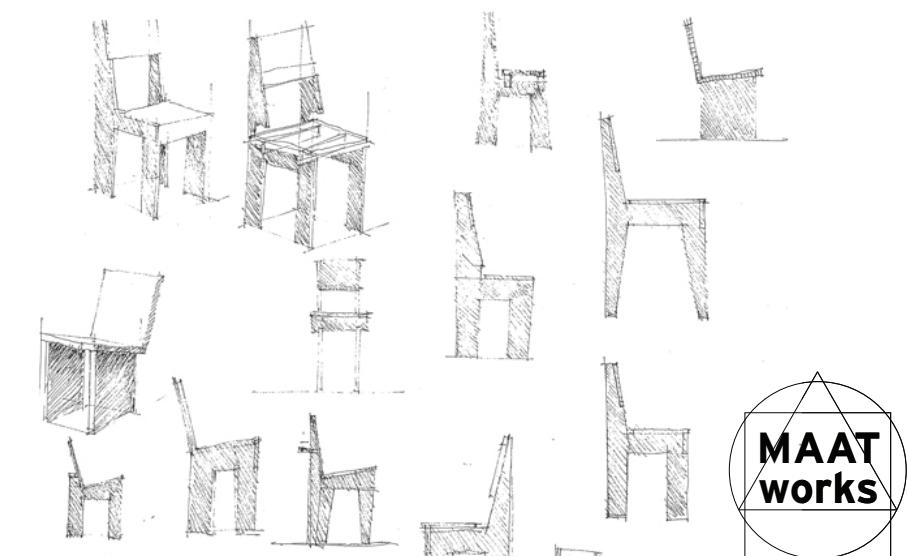
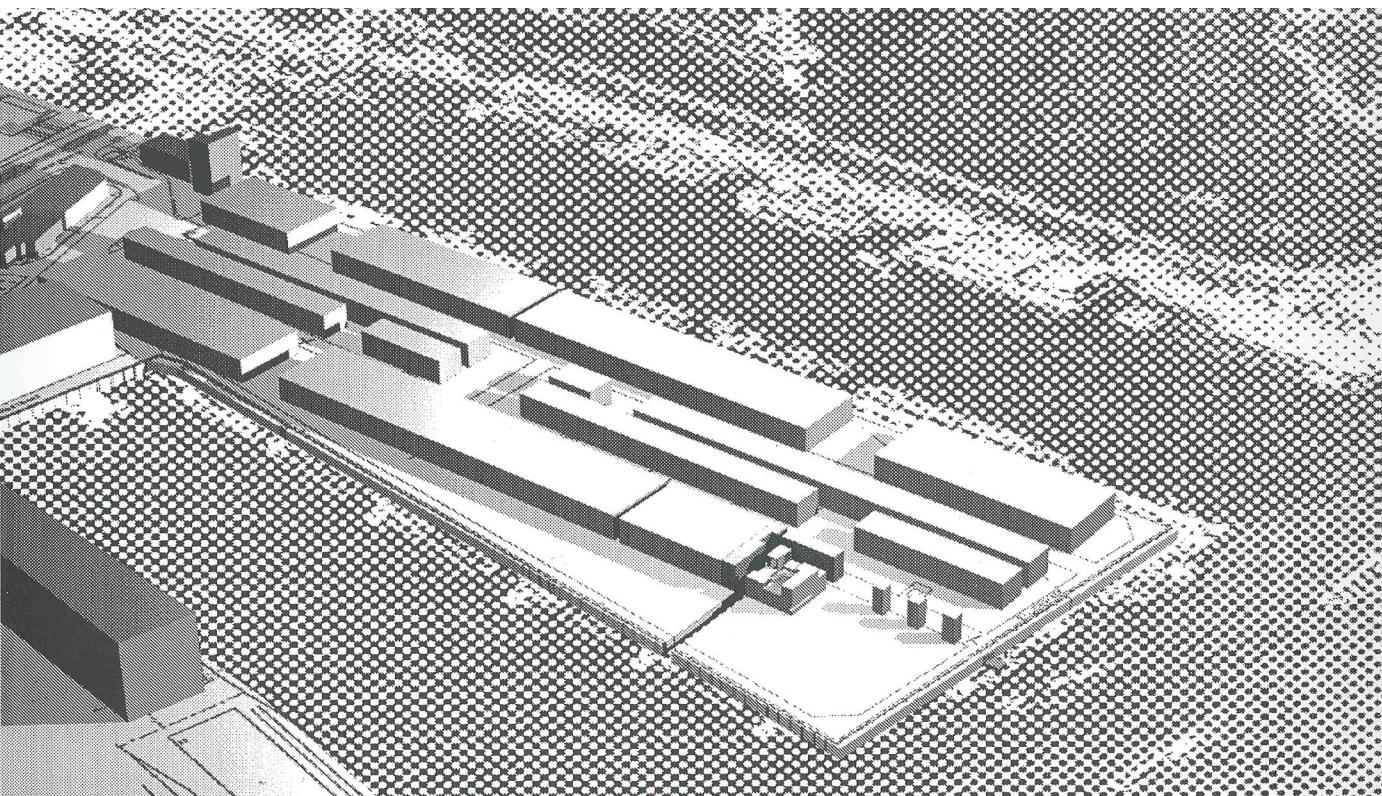
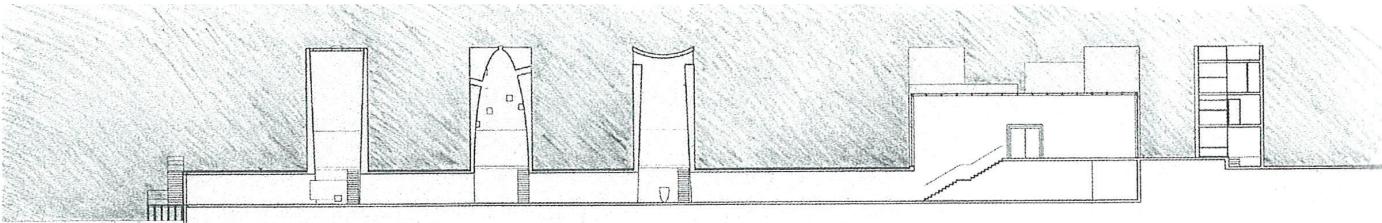
**daylight  
orientation of rooms  
size of rooms  
composition  
communal space  
privacy**

# a personal story

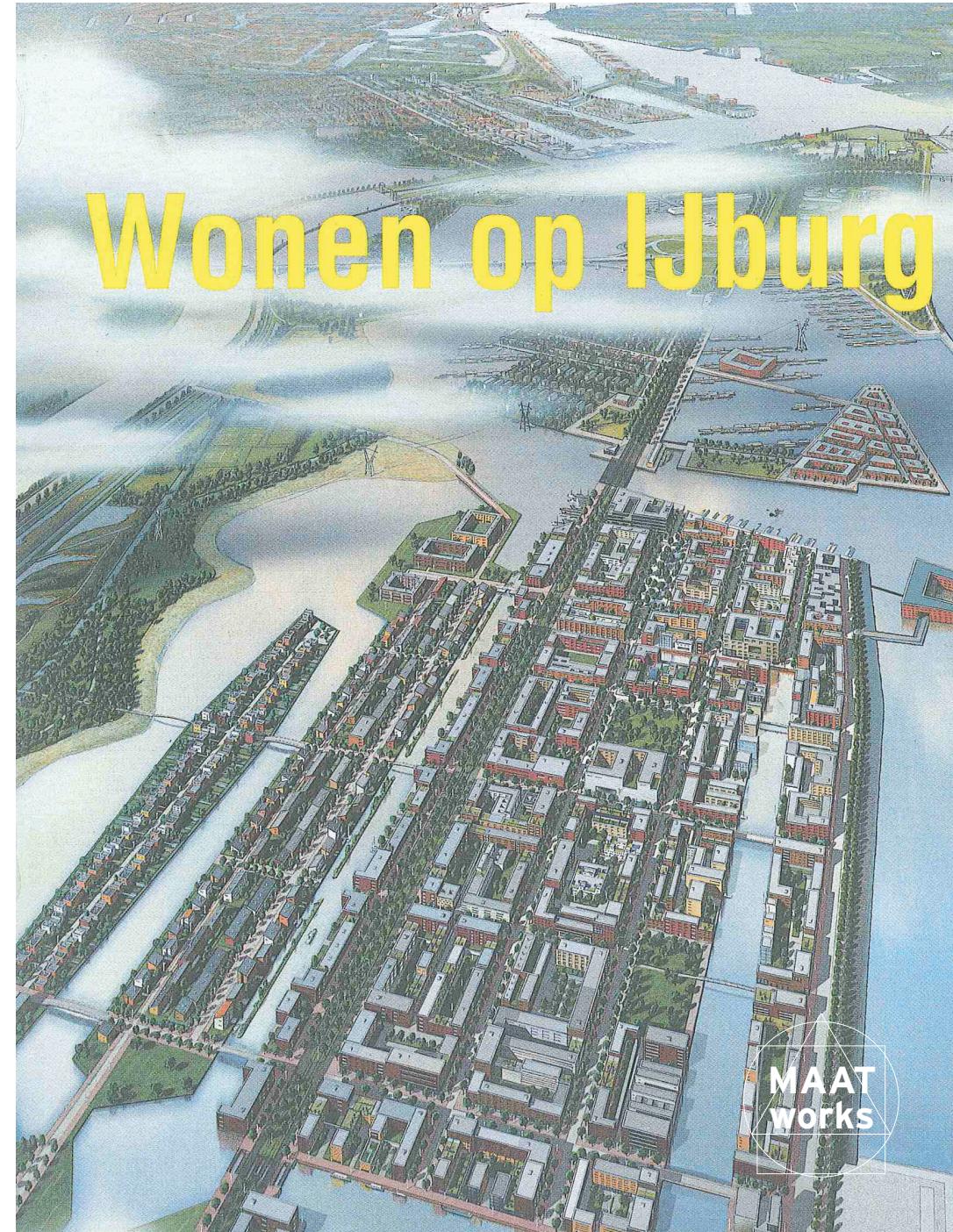
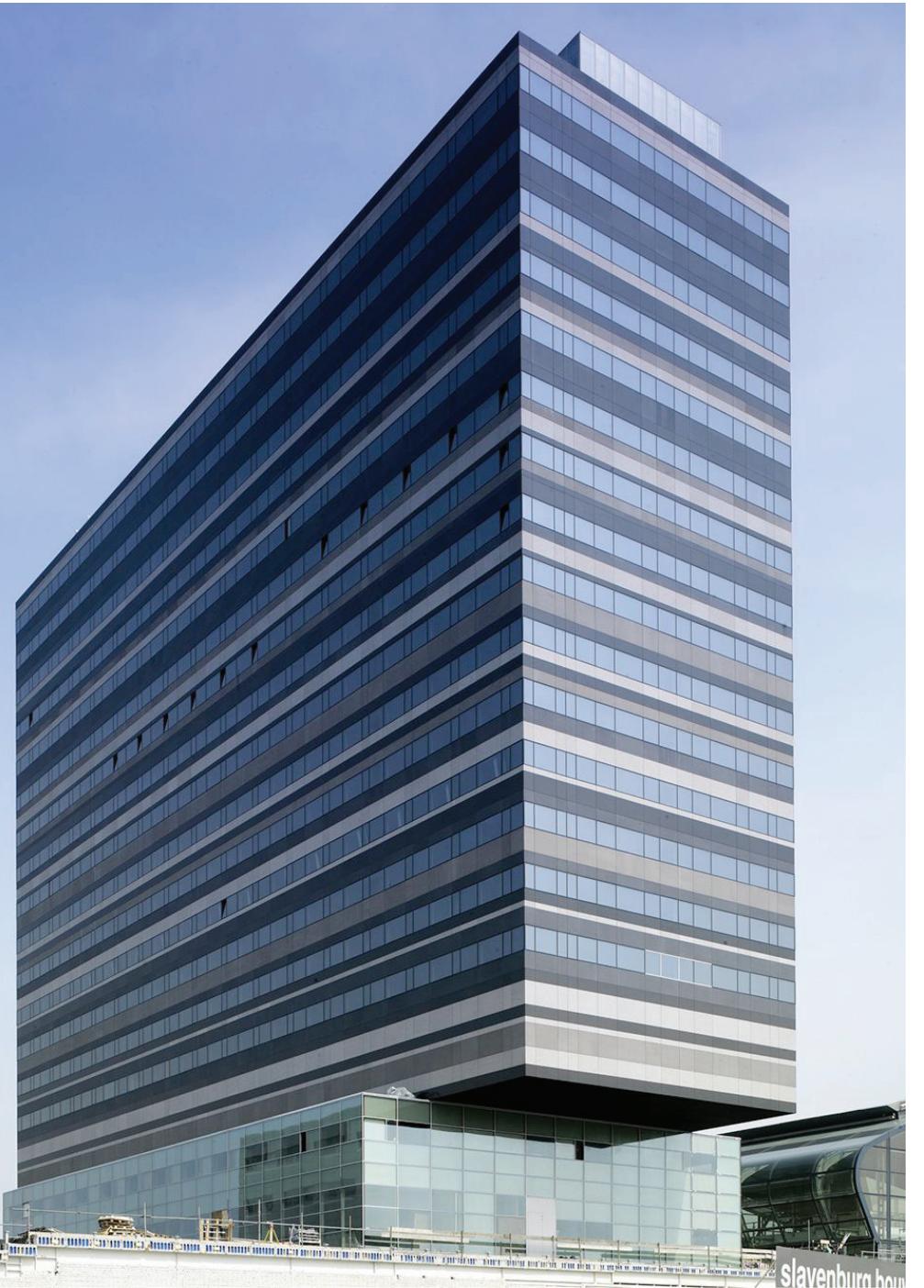


# 1997 graduation Faculty of Architecture Technical University of Delft

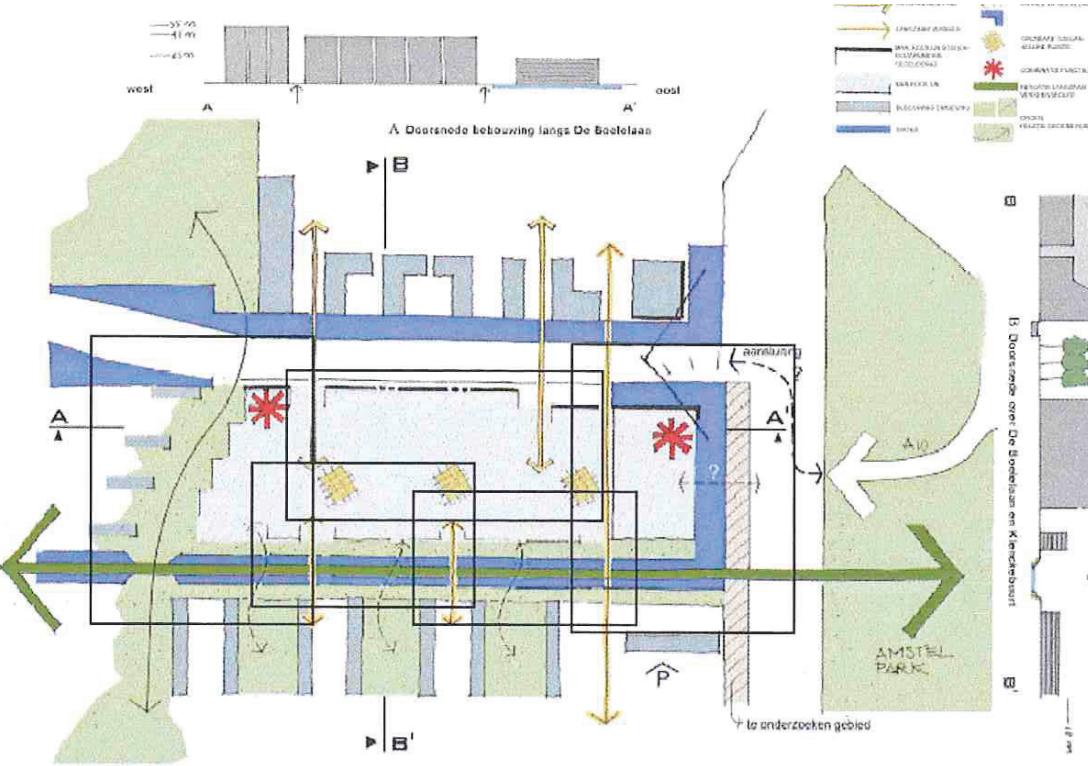
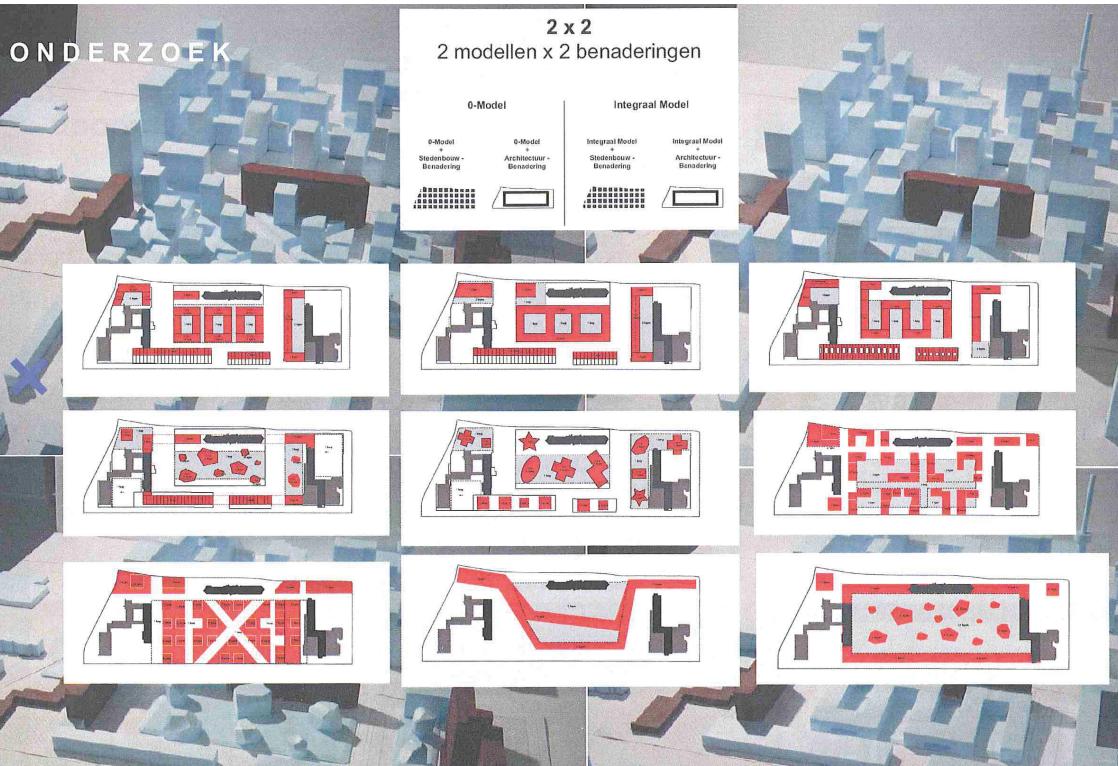
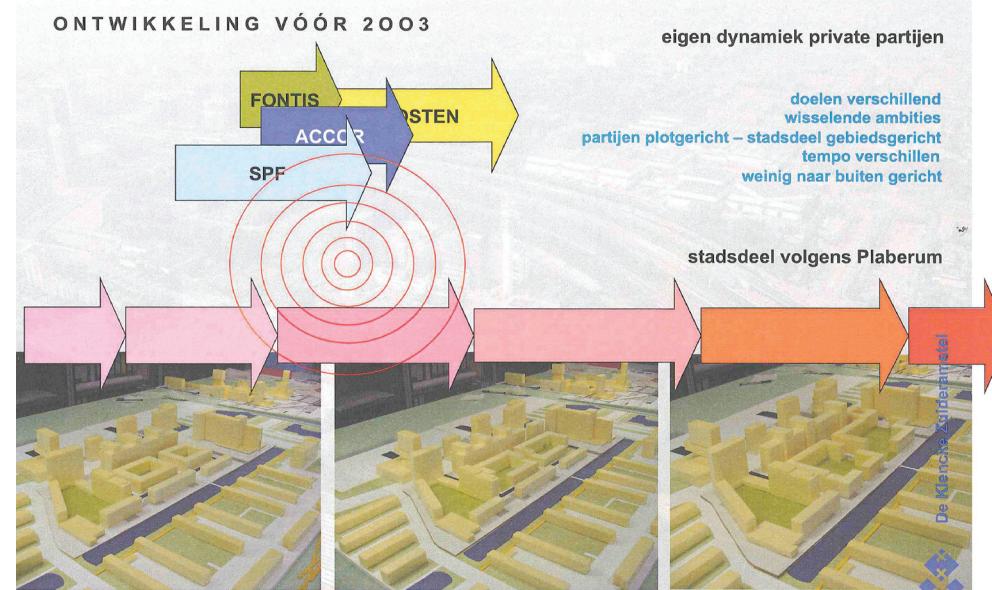
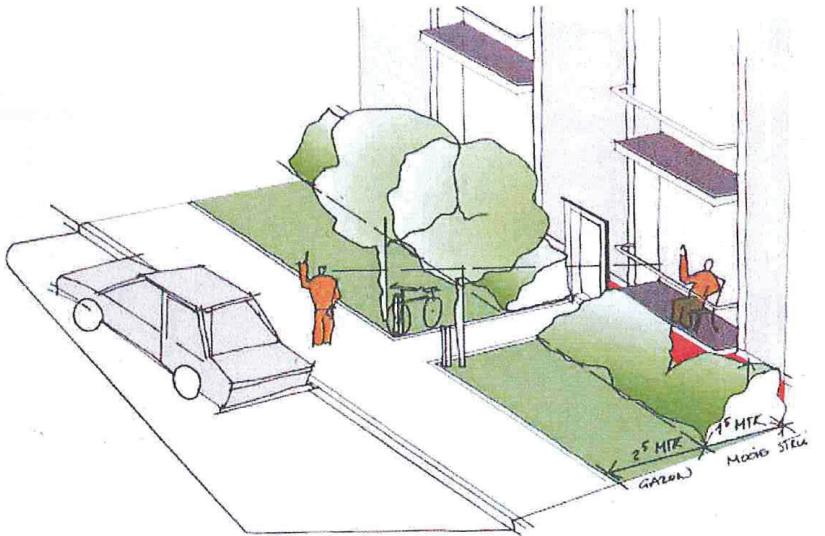
everyday temple - from city to chair



# projects in architecture offices a.o. claus & kaan architecten



# urban planning at planning department Amsterdam



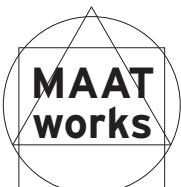
# 2004 Steigereiland Amsterdam



2004



**who did ever build his/her own house?**

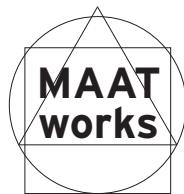


# first design

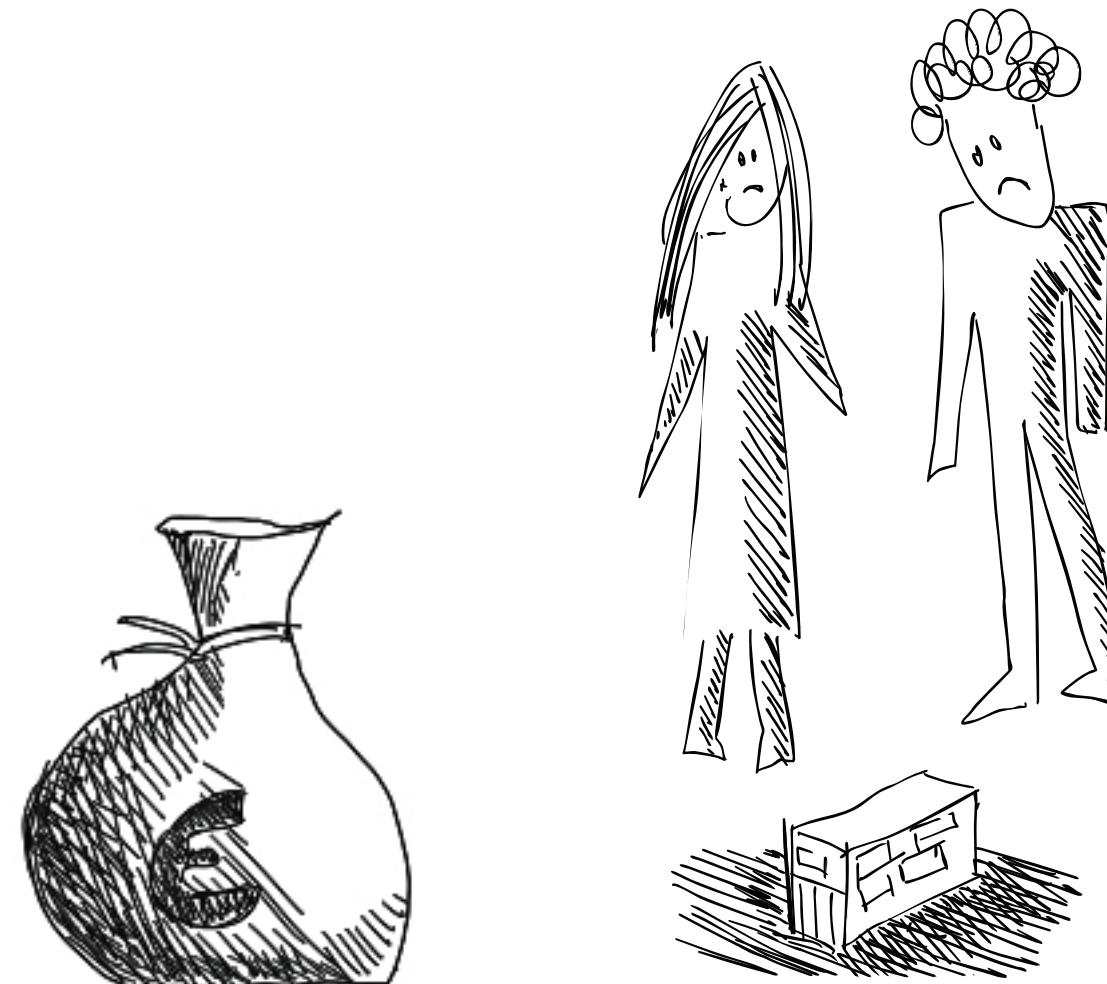


**modest budget**

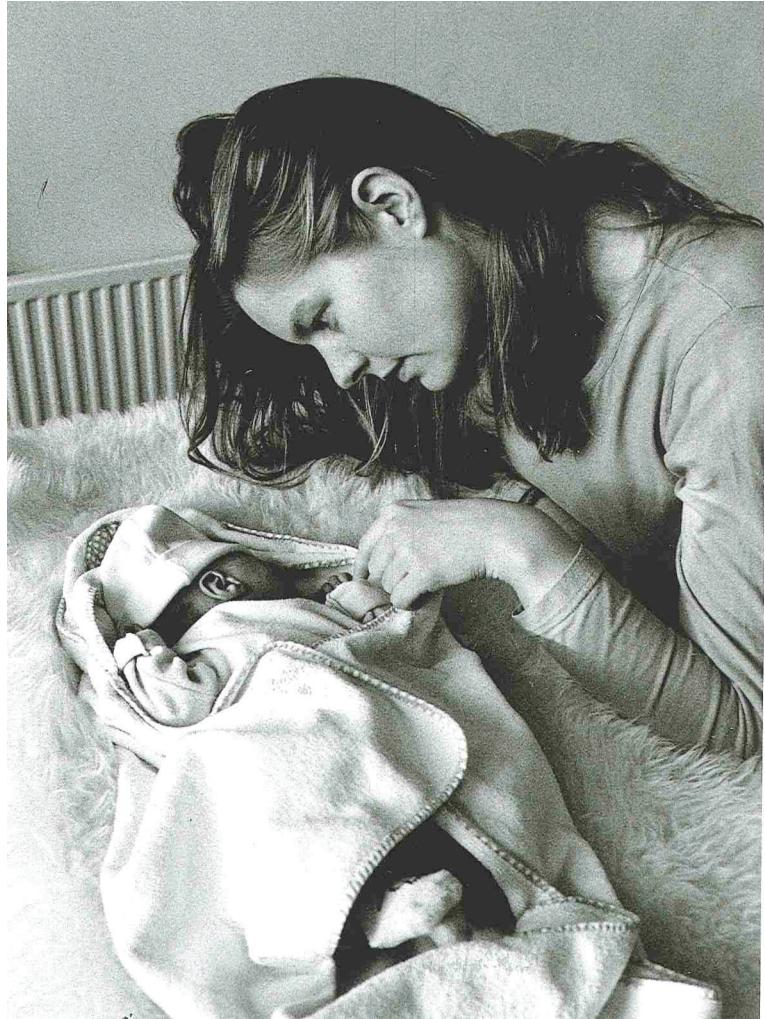
**choice for a traditional building method  
because of cost-considerations**



# after negotiations and cuts

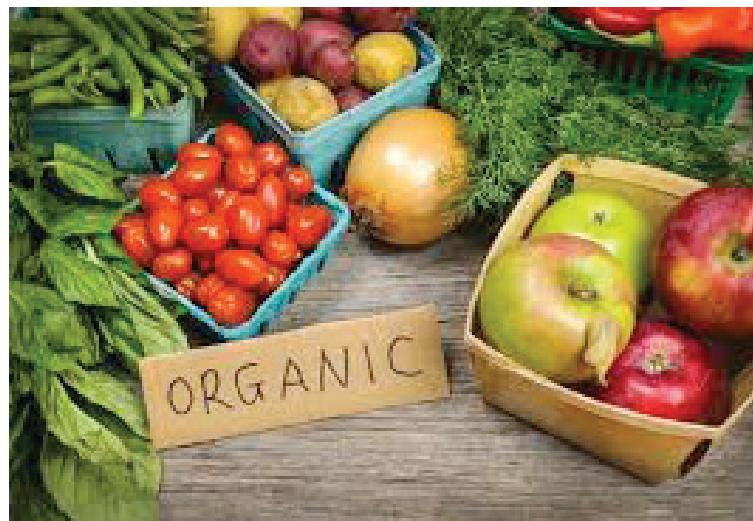


# **what is really important?**

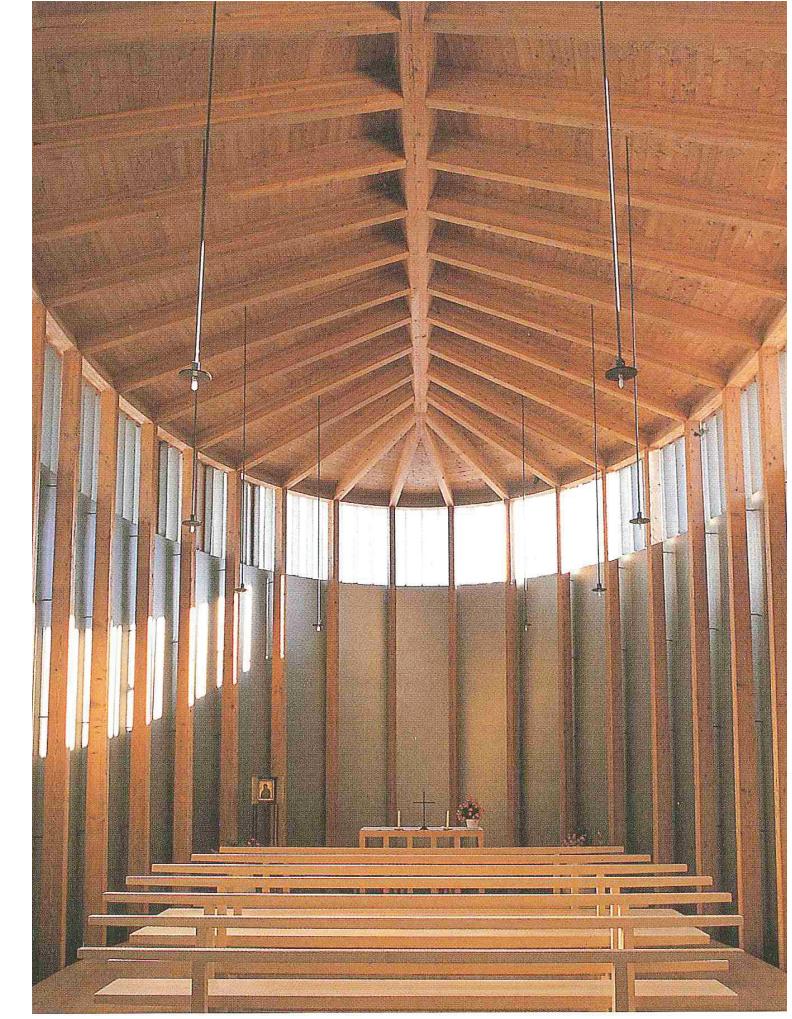


**future**

**health**



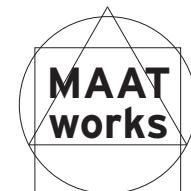
**health**



**atmosphere**

**feeling of comfort**

**safety**

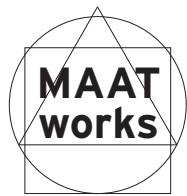


## second design



**biobased materials & modest budget**

**choice for an experimental building  
method because of health &  
sustainability considerations**



2006



# **combination of timber frame construction & laminated timber floorslabs**

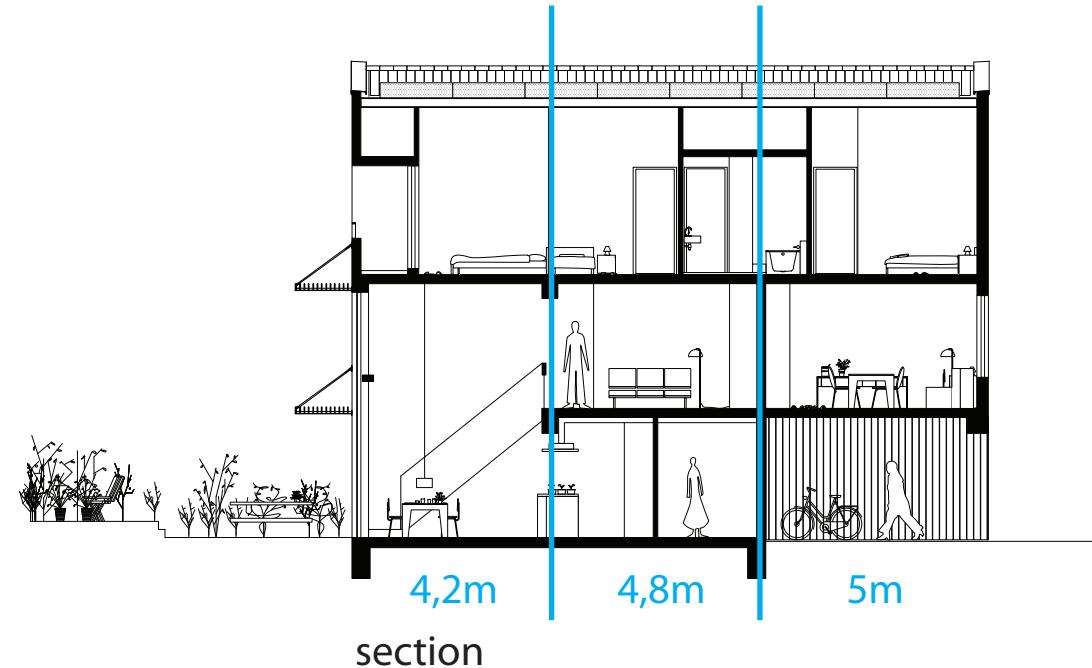
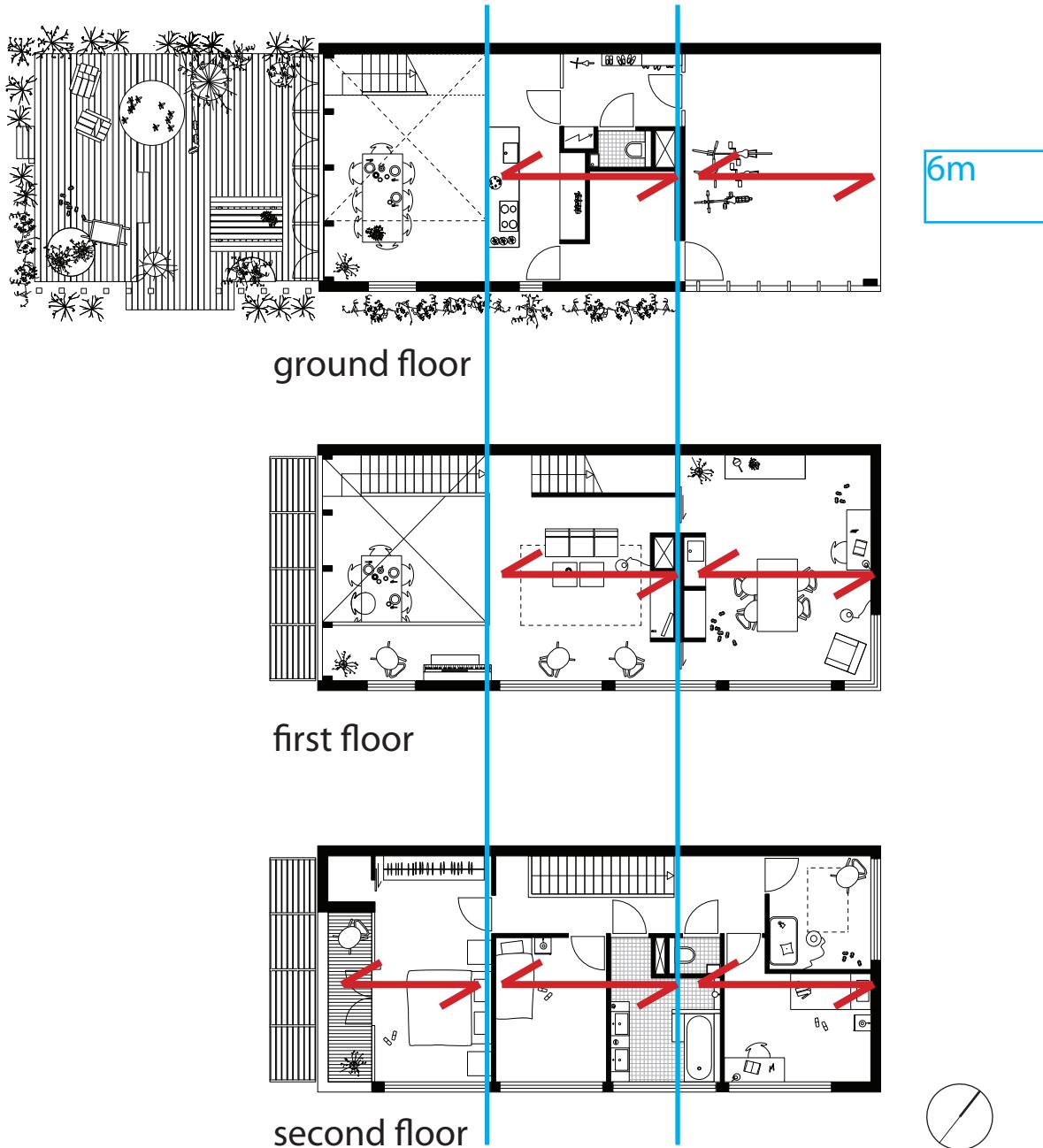


**simple detailing  
minimalistic**

**construction and  
joints visible**

**honesty, what you  
see is what you get**

# efficient span of the floorslabs

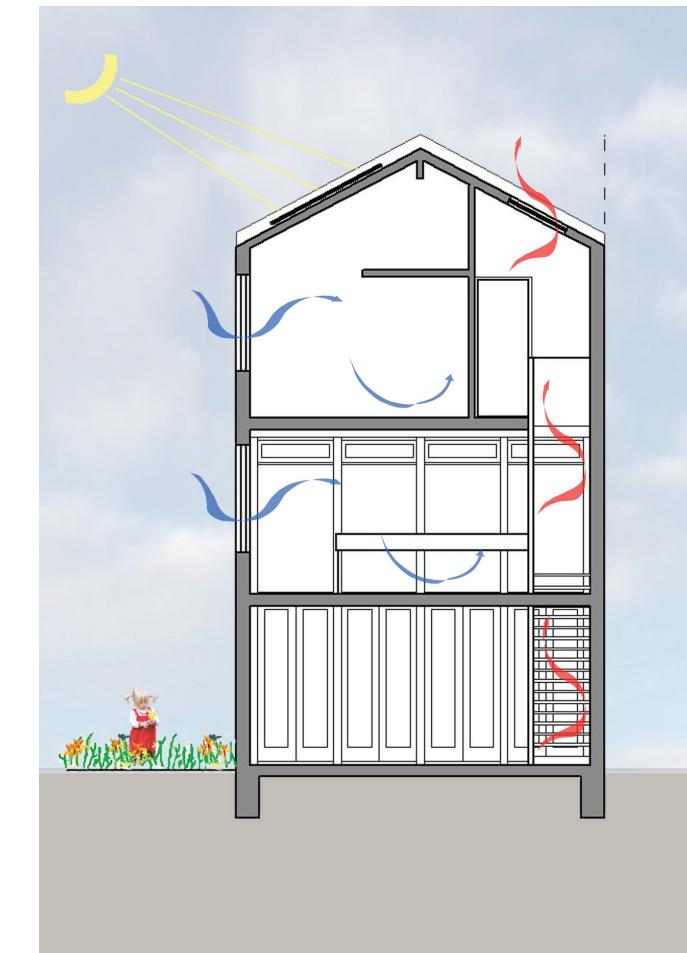




MAAT  
works



## climate design - low tech



**orientation  
sleeping rooms to the east  
living spaces to sout-west**

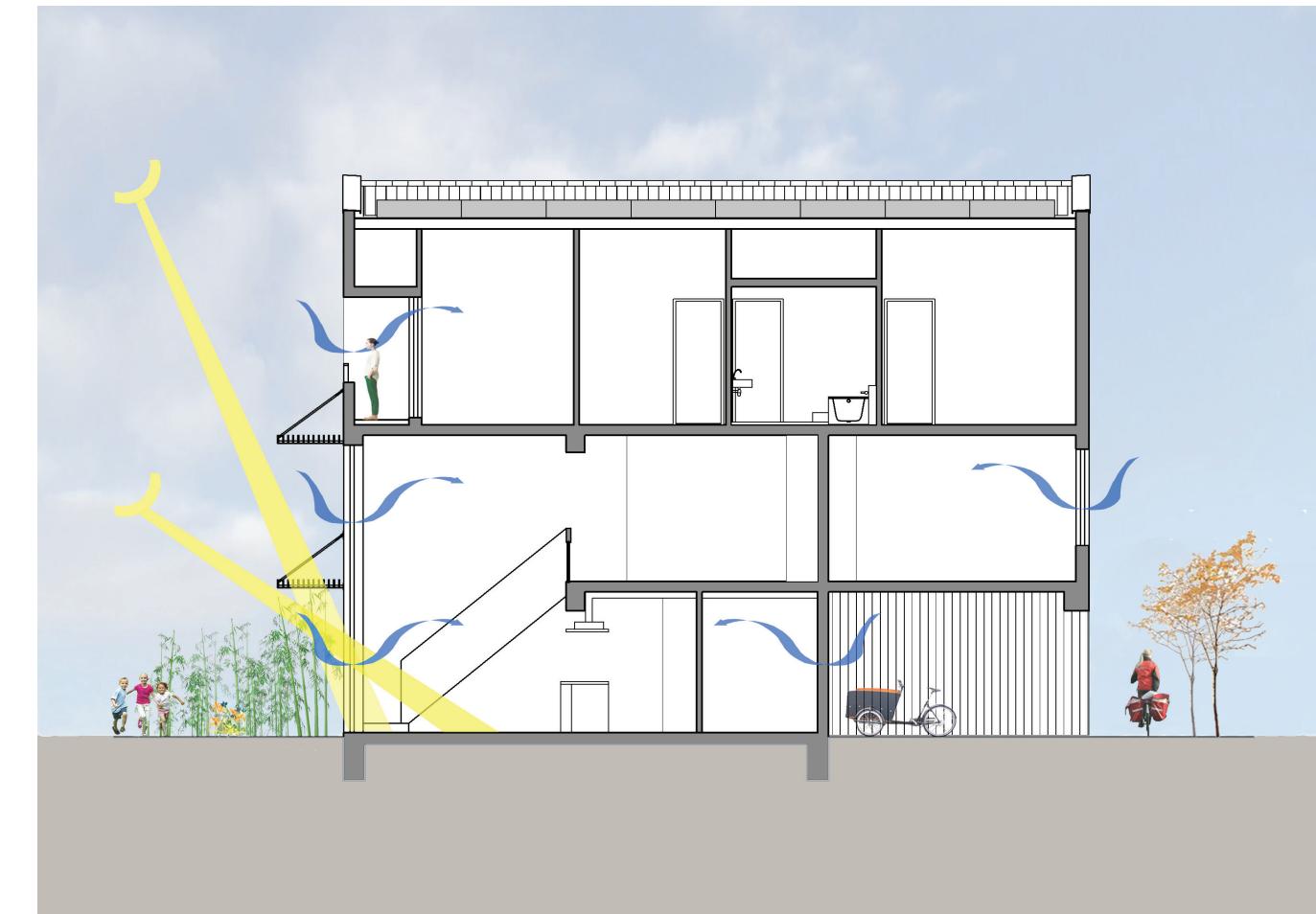
**awnings to keep out the sun  
natural ventilation**

**solar panels on roof**

**connected to a sustainable district  
heating network**

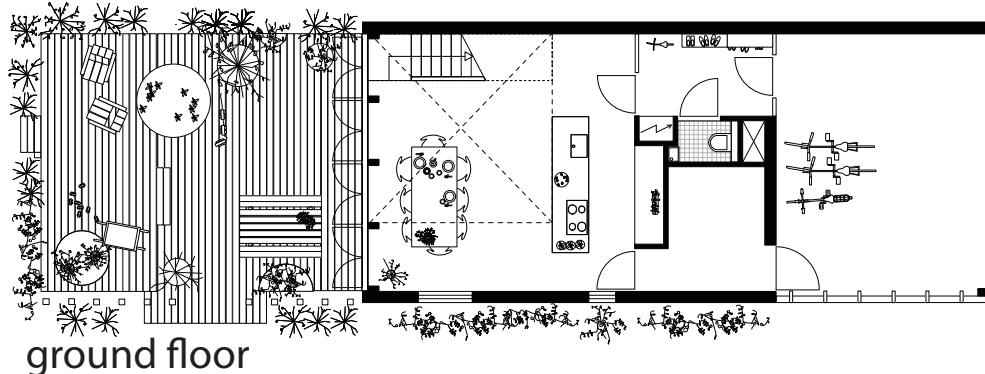


## climate design - low tech

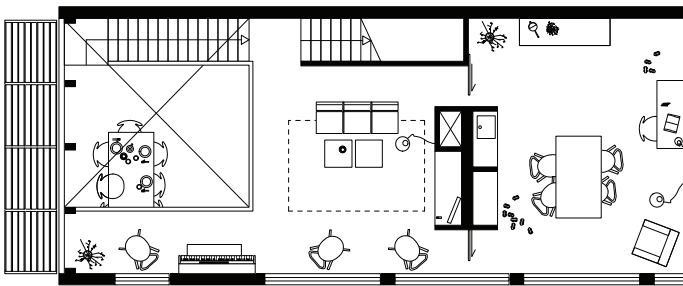




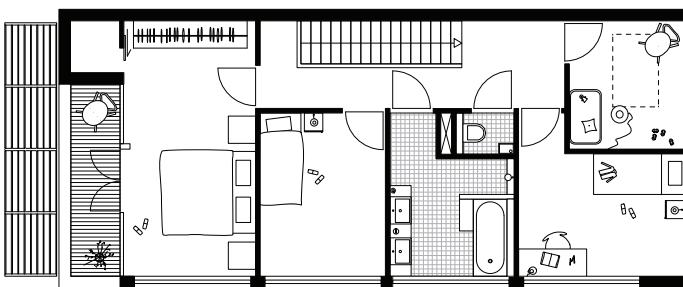
# kitchen



ground floor



first floor



second floor



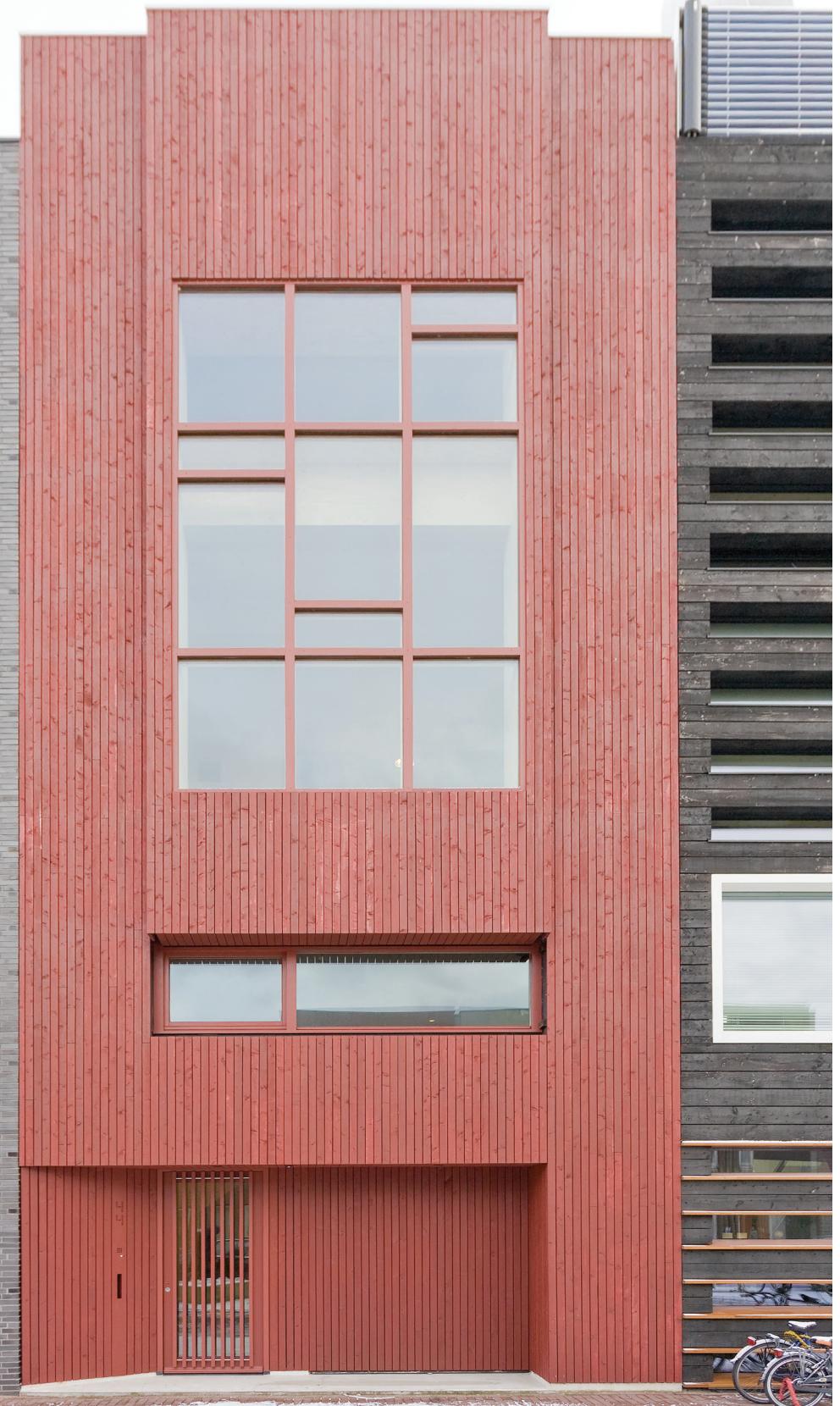
MAAT  
works

# walk towards the light

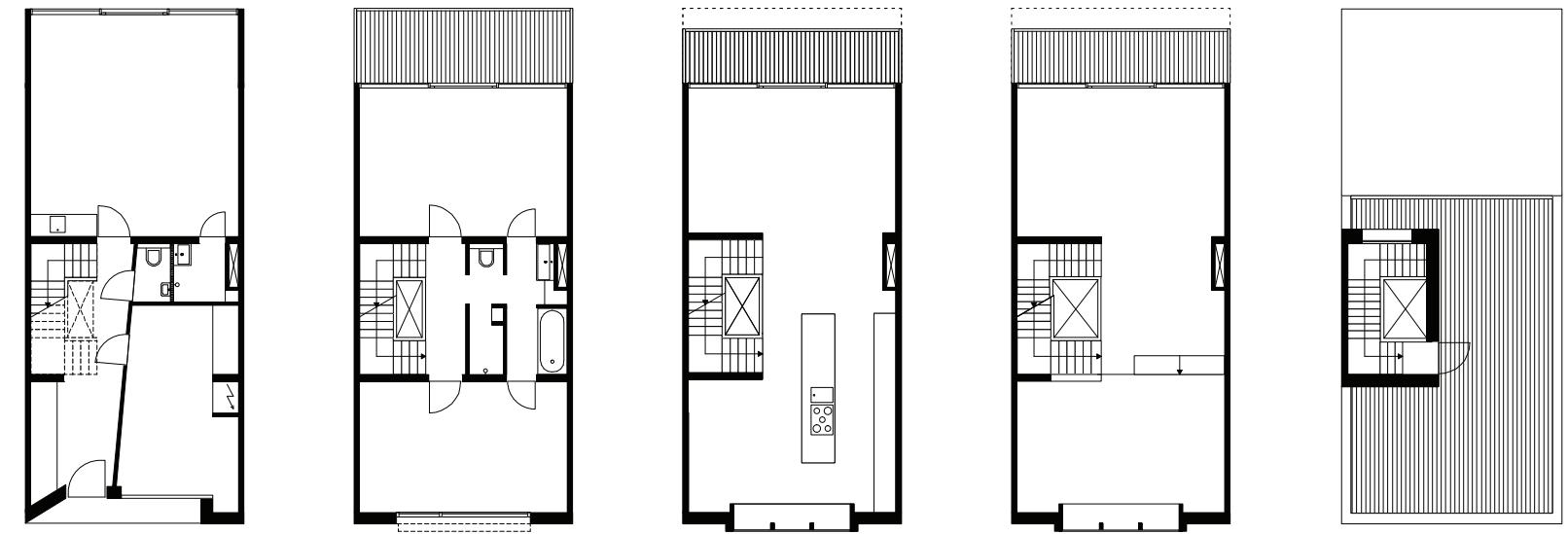




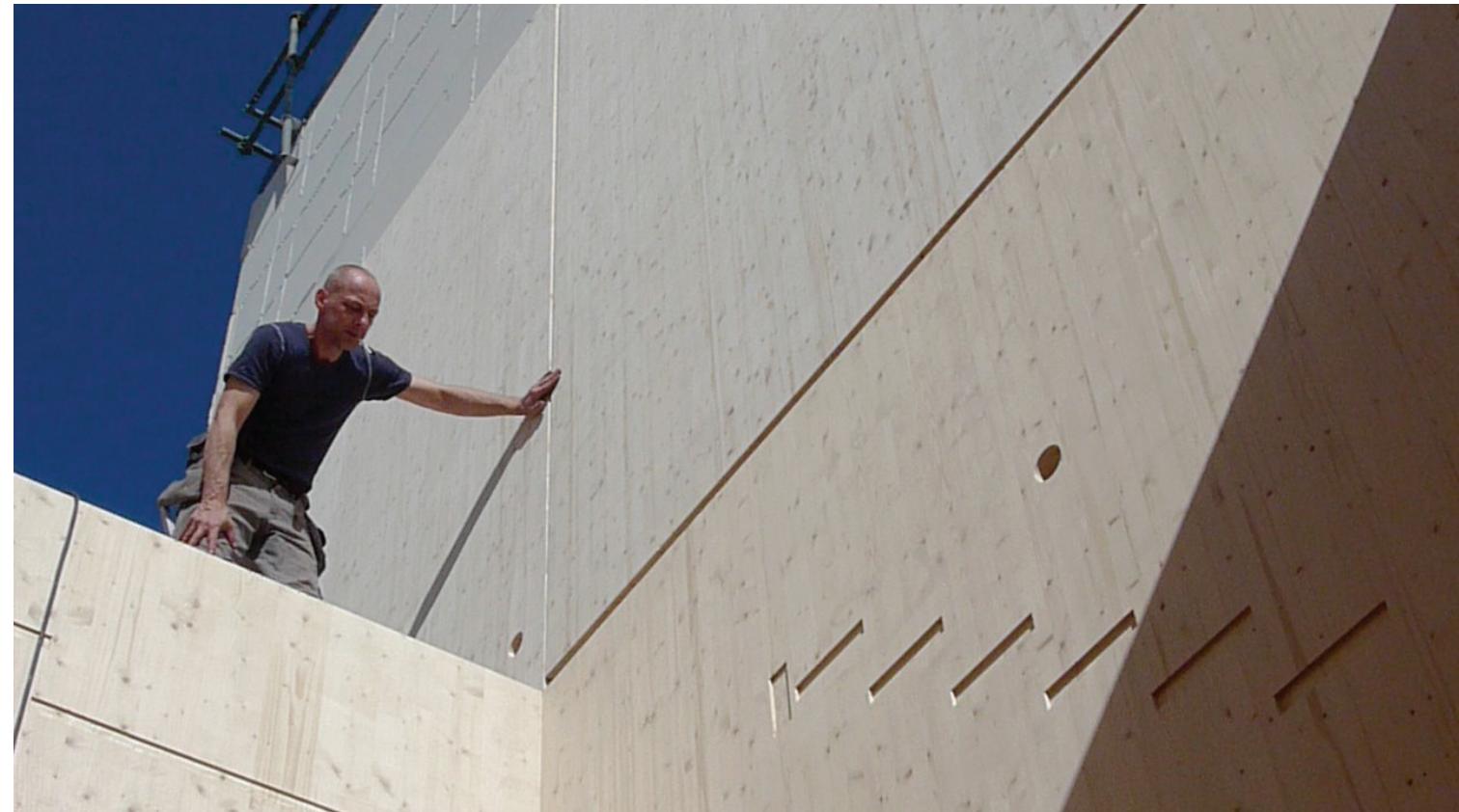
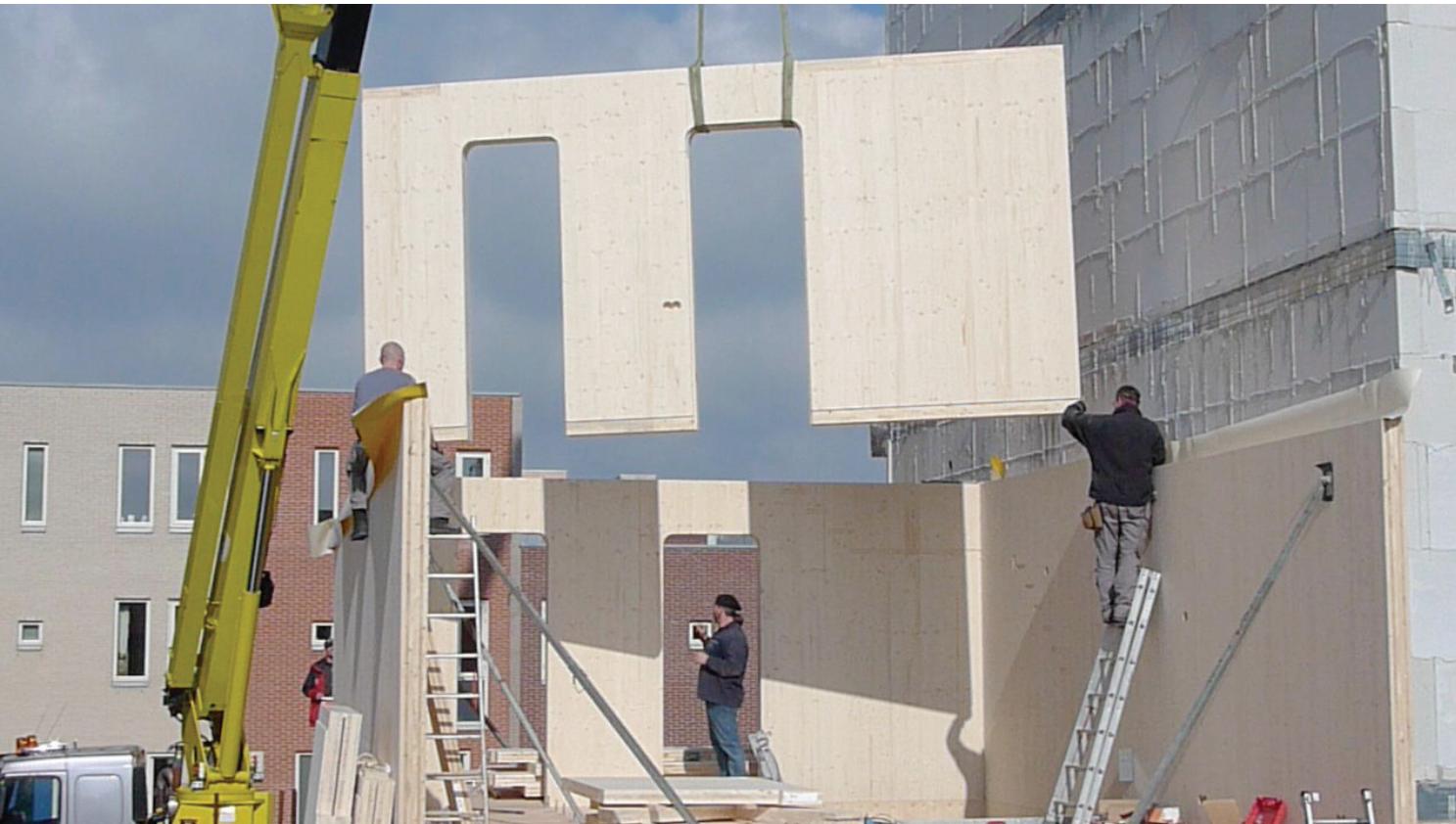
MAAT  
works



## 2009 - second wooden house

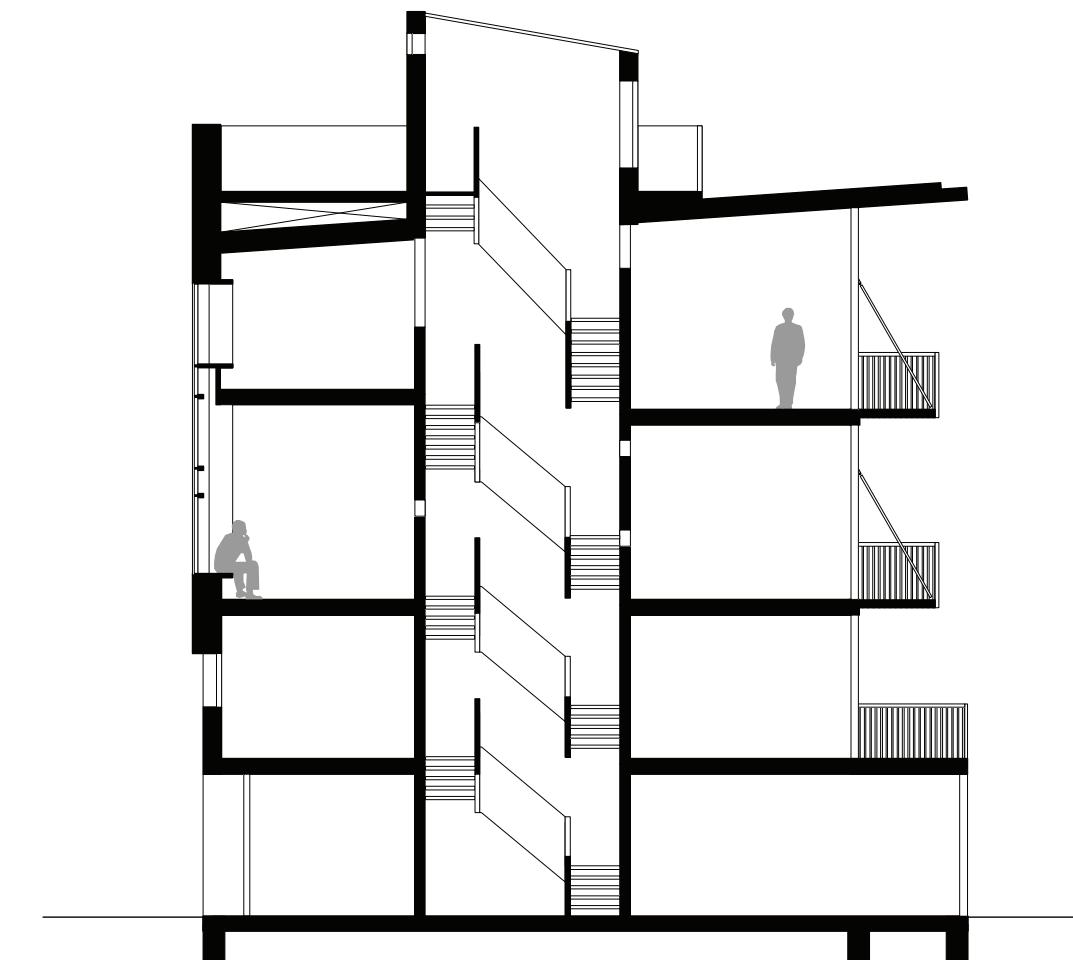


# cross laminated timber

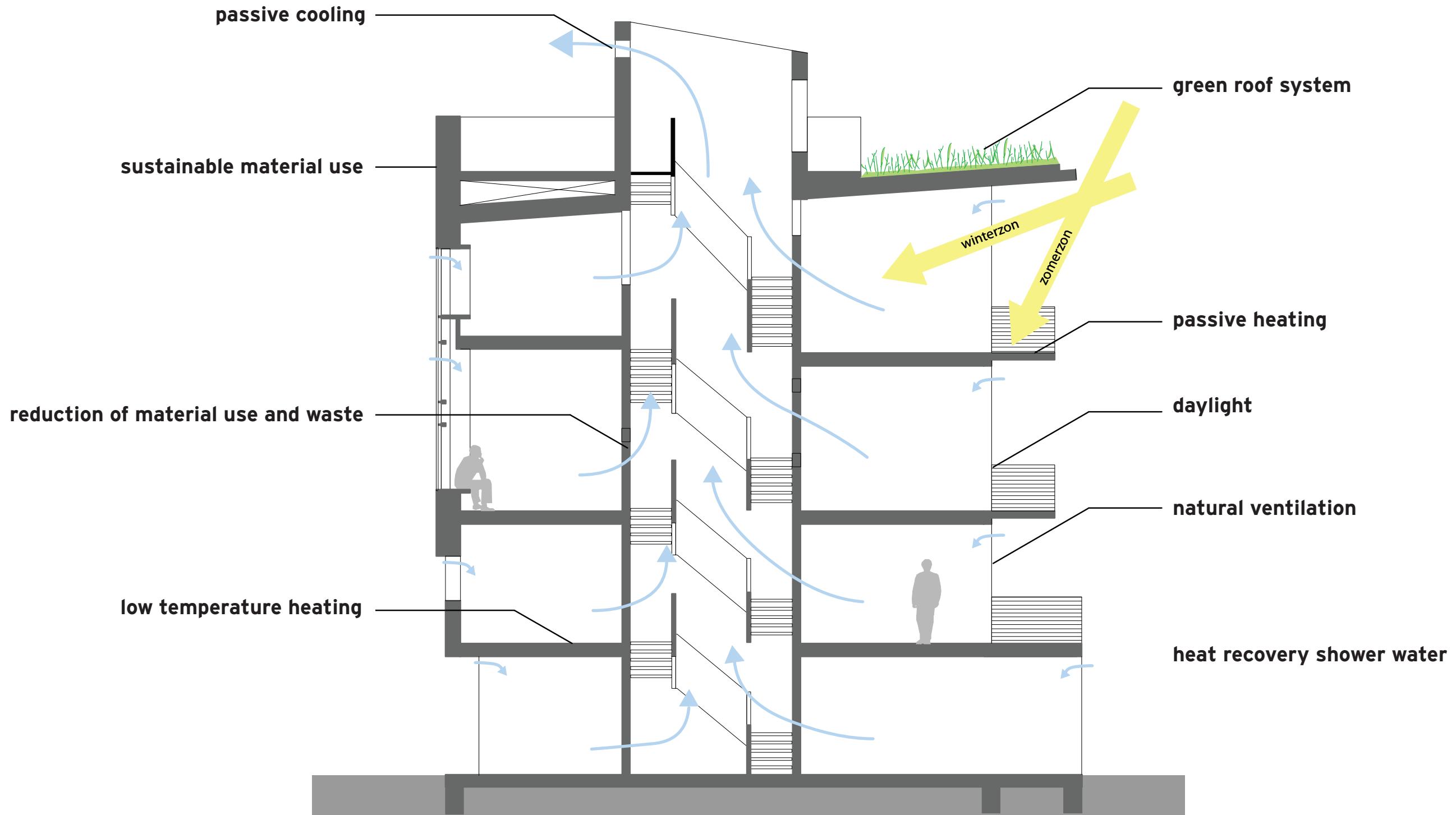




# lignatur roof elements

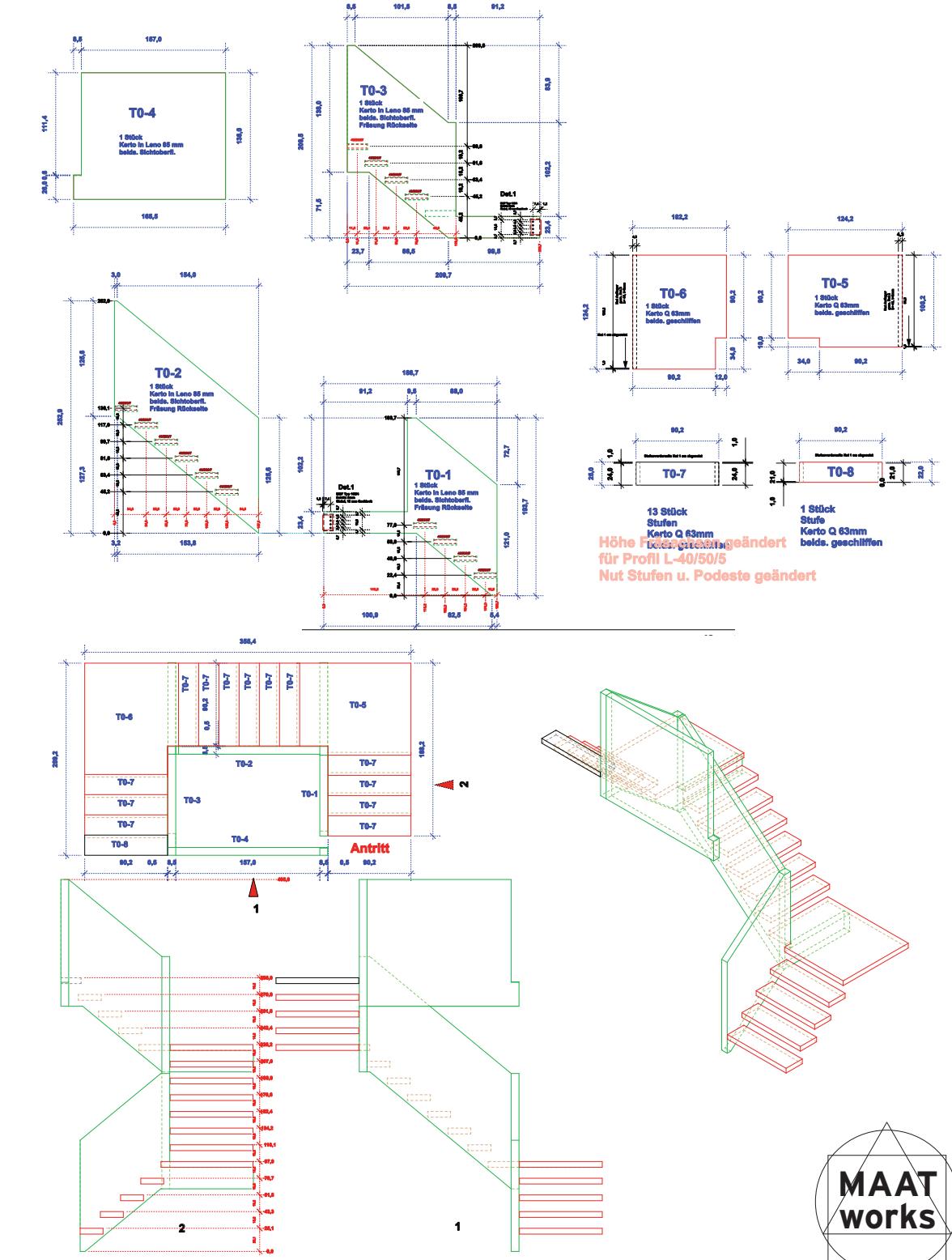
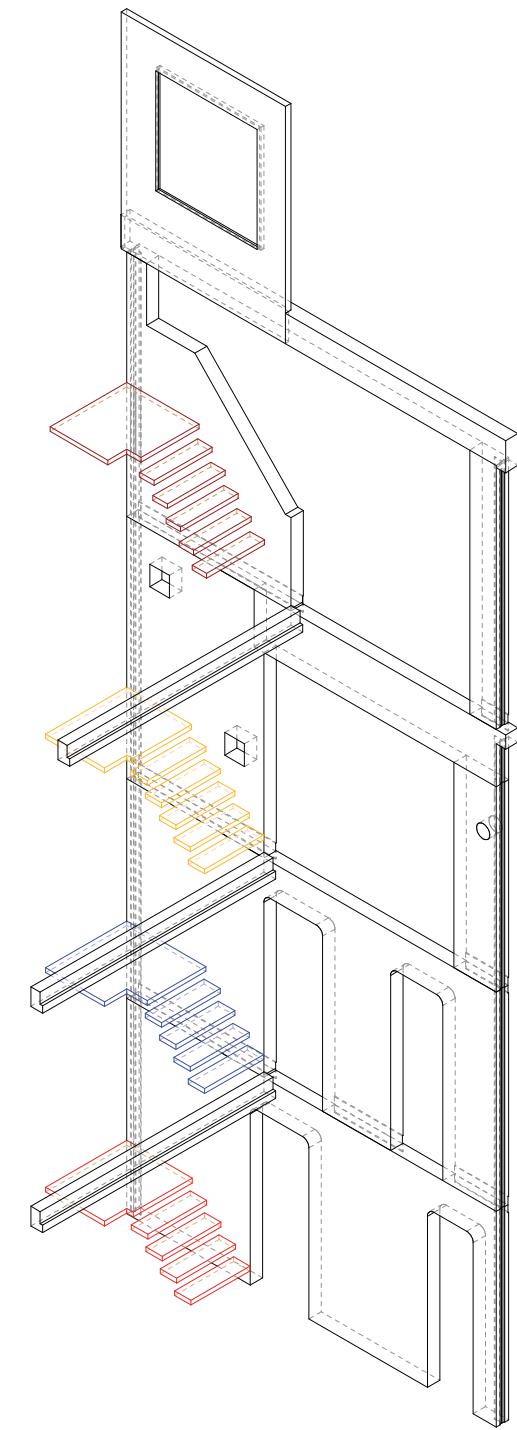


# bioclimatic design

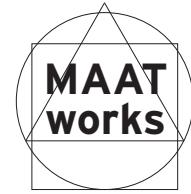


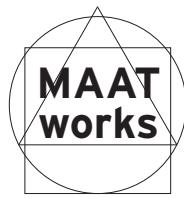


# CLT precision



**MAAT**  
**works**



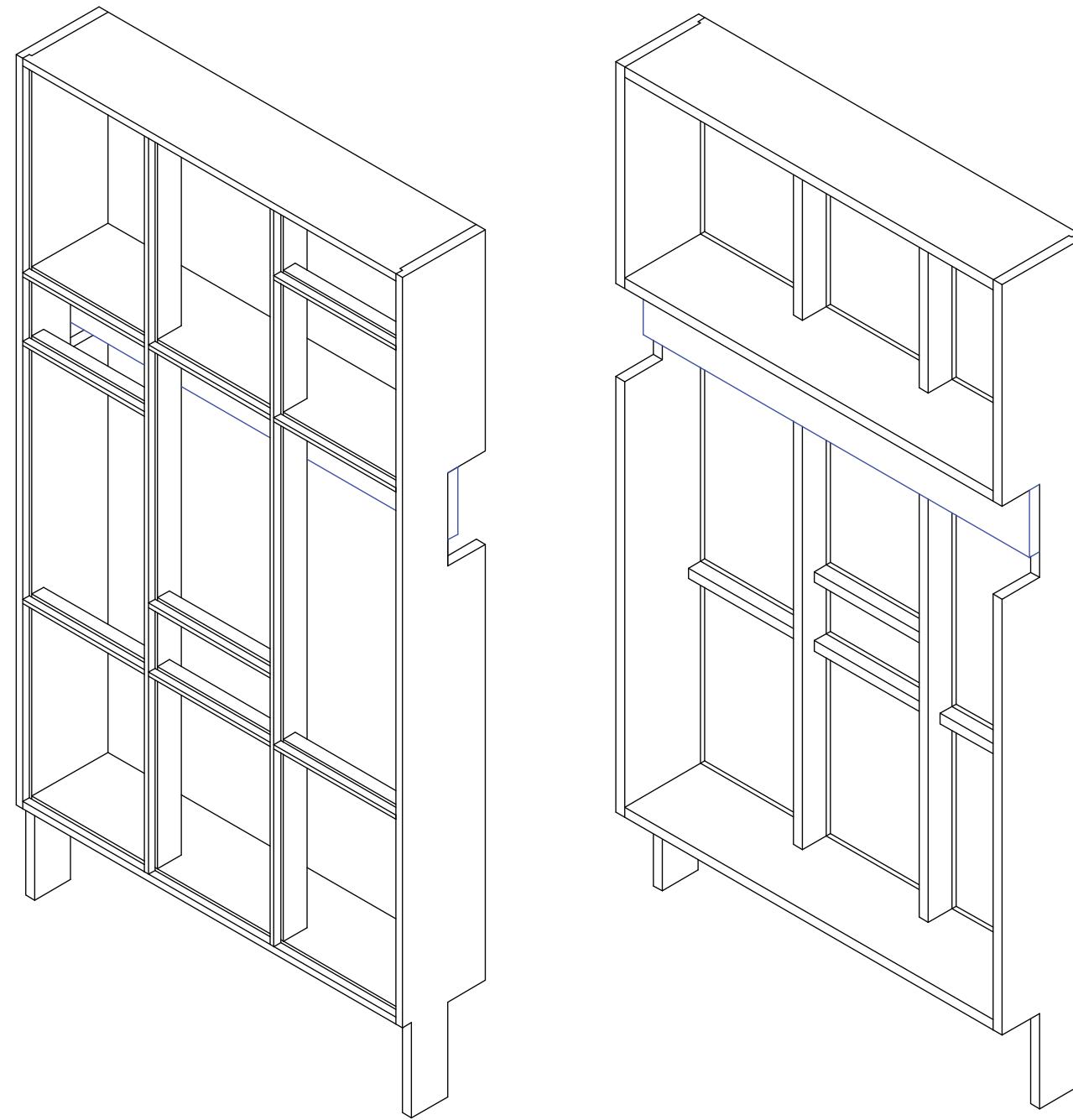




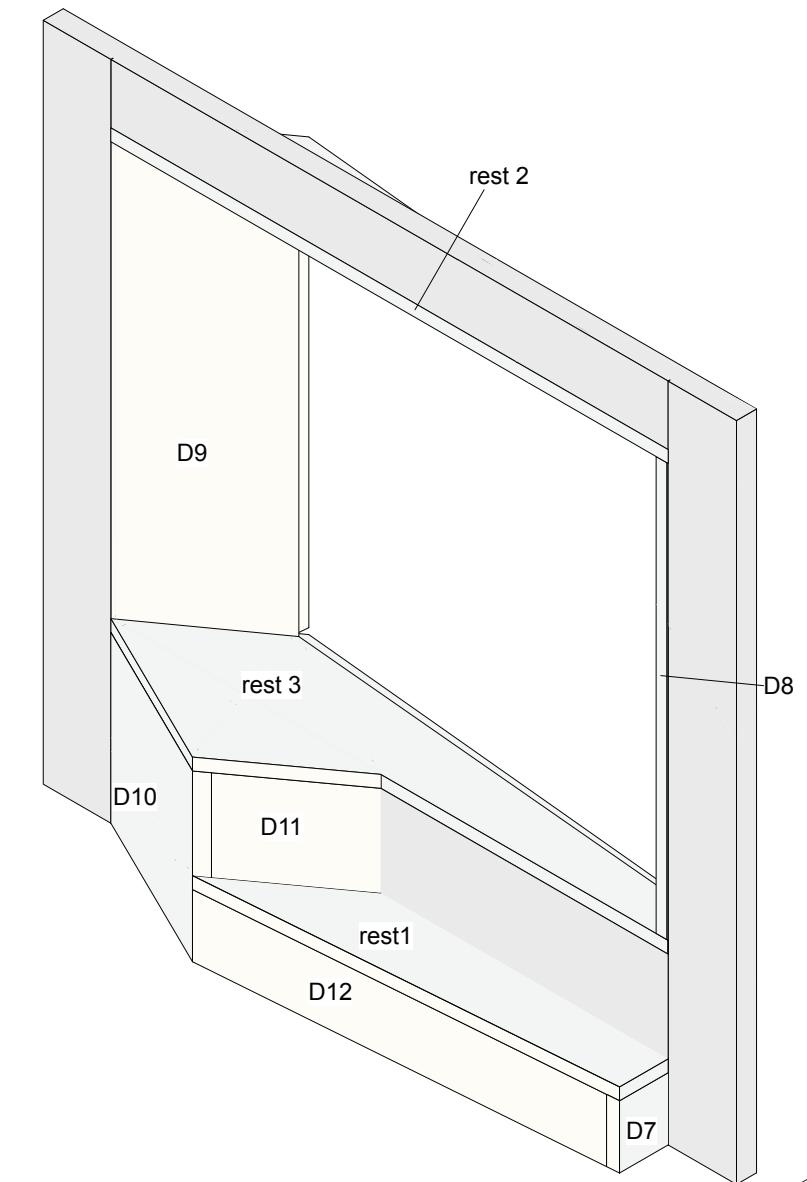
MAAT  
works



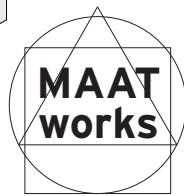
# kerto facade



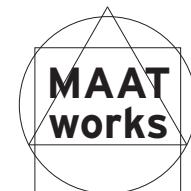
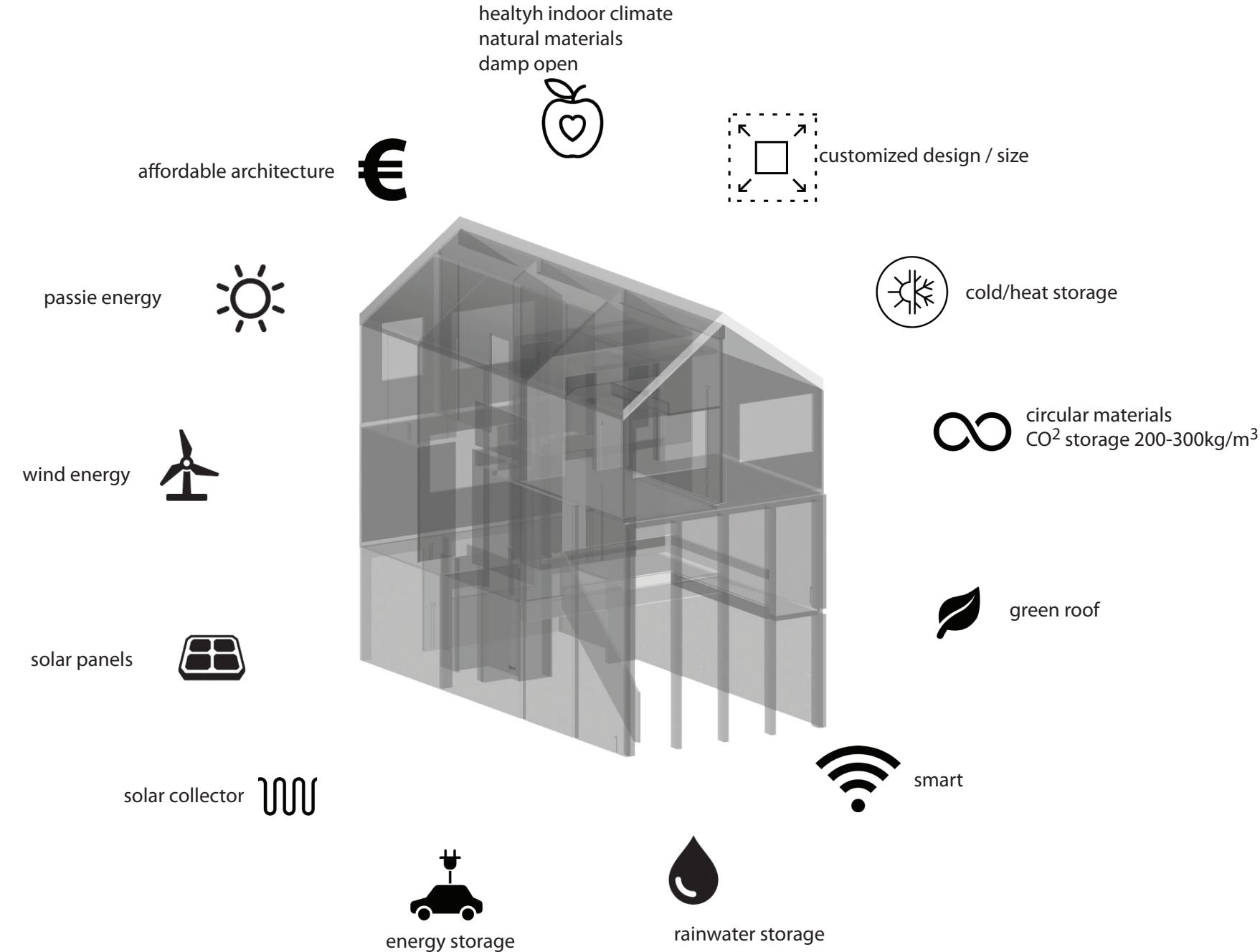
# CLT furniture



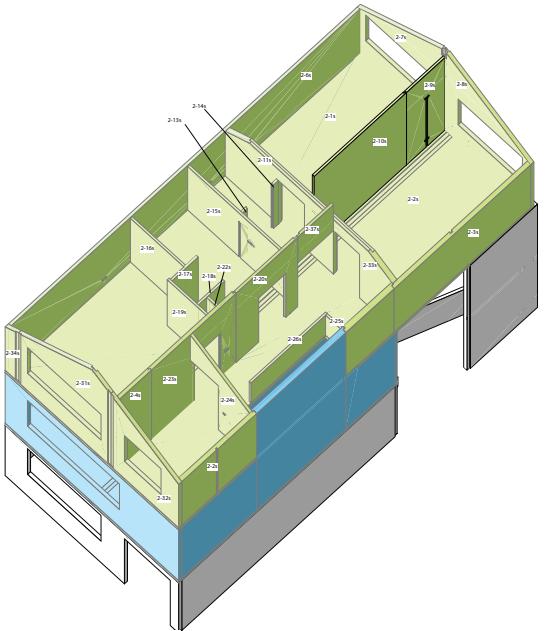
project: Cornelis Zillesenlaan



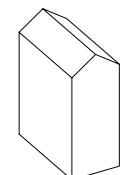
# 2015-2018 concept 'my wooden house'



# standardization - customization

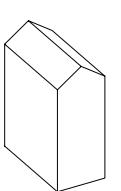


'standard' plan  
with fixed price



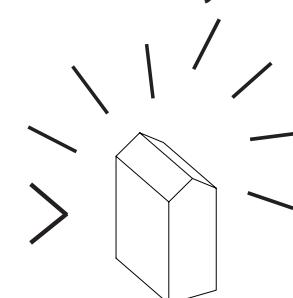
> customer / client >

customized plan  
with adjusted price



> building permit > production drawings > production prefab elements > assembly of wooden casco and finishing

delivery



architect



wood factory



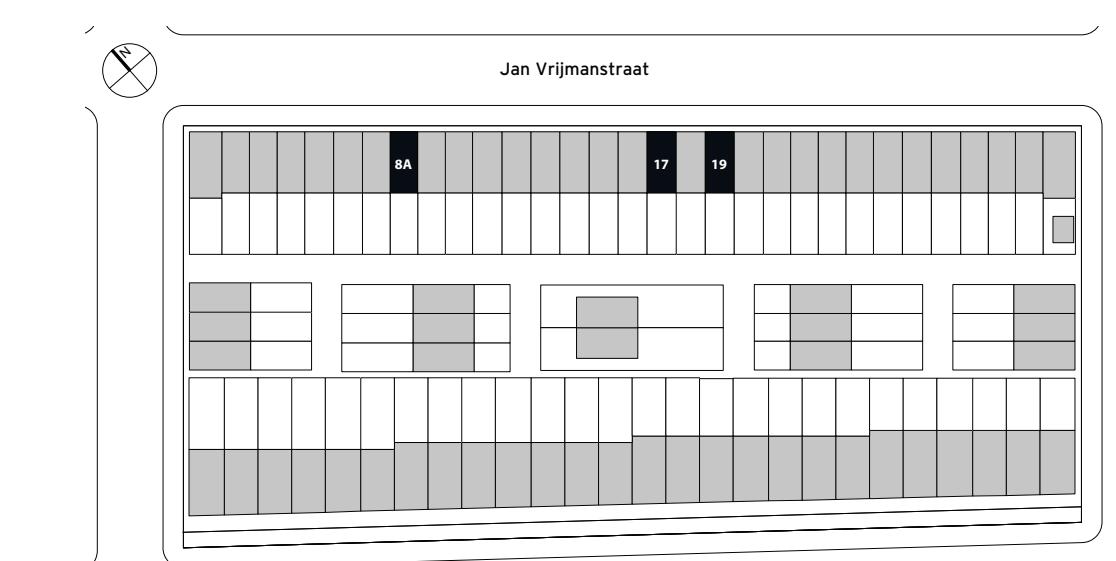
construction



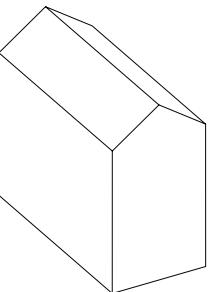
company

**MAAT  
works**

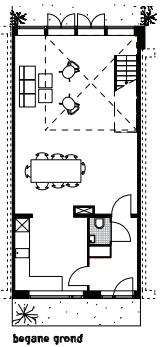
# concept 'my wooden house' in Amsterdam



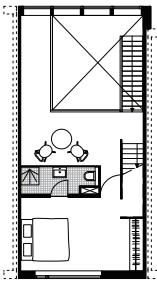
# variation of floor plans



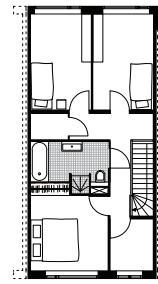
kavel 19



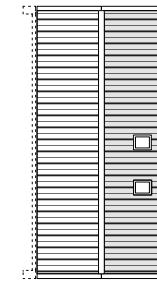
begane grond



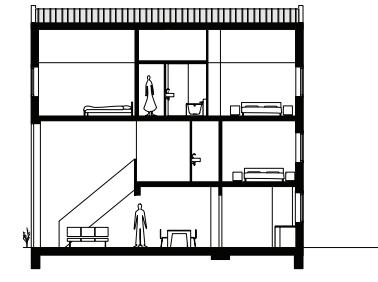
1e verdieping



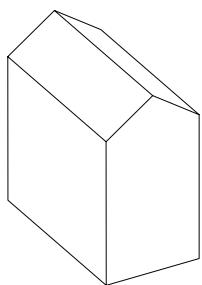
2e verdieping



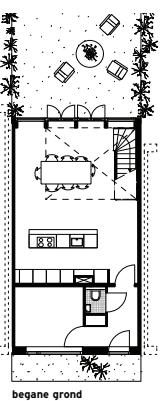
dak



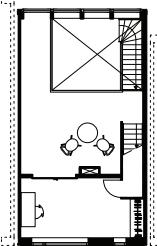
langsdoorsnede



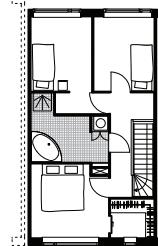
kavel 17



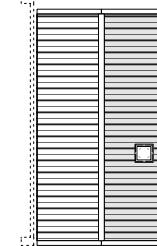
begane grond



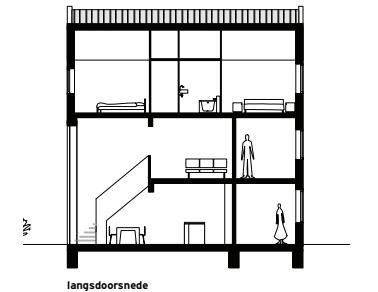
1e verdieping



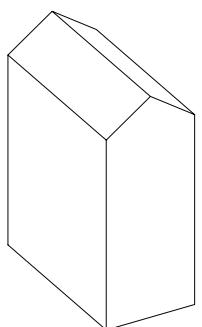
2e verdieping



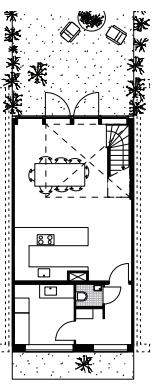
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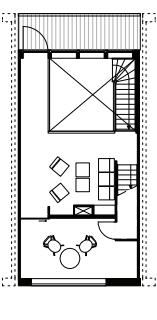
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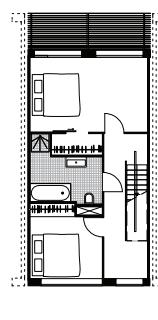
kavel 8a



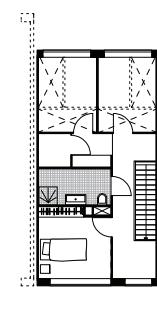
begane grond



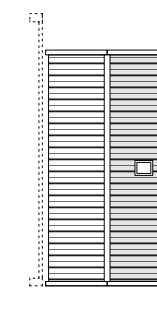
1e verdieping



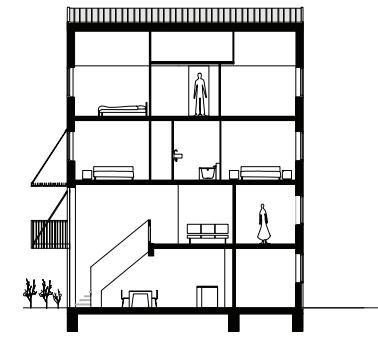
2e verdieping



3e verdieping



dakaanzicht



langsdoorsnede

**no.19**



**no.19**



no.17



**no.17**



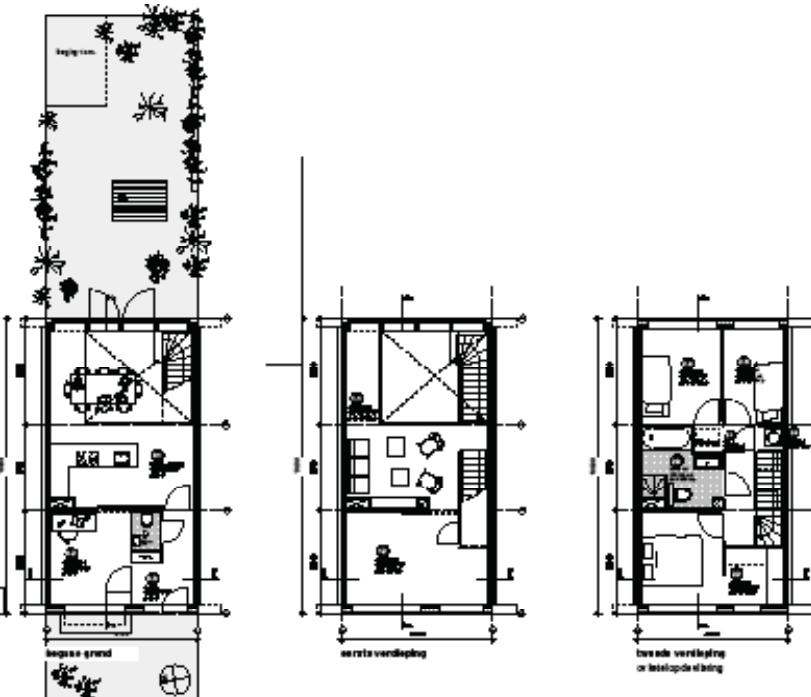
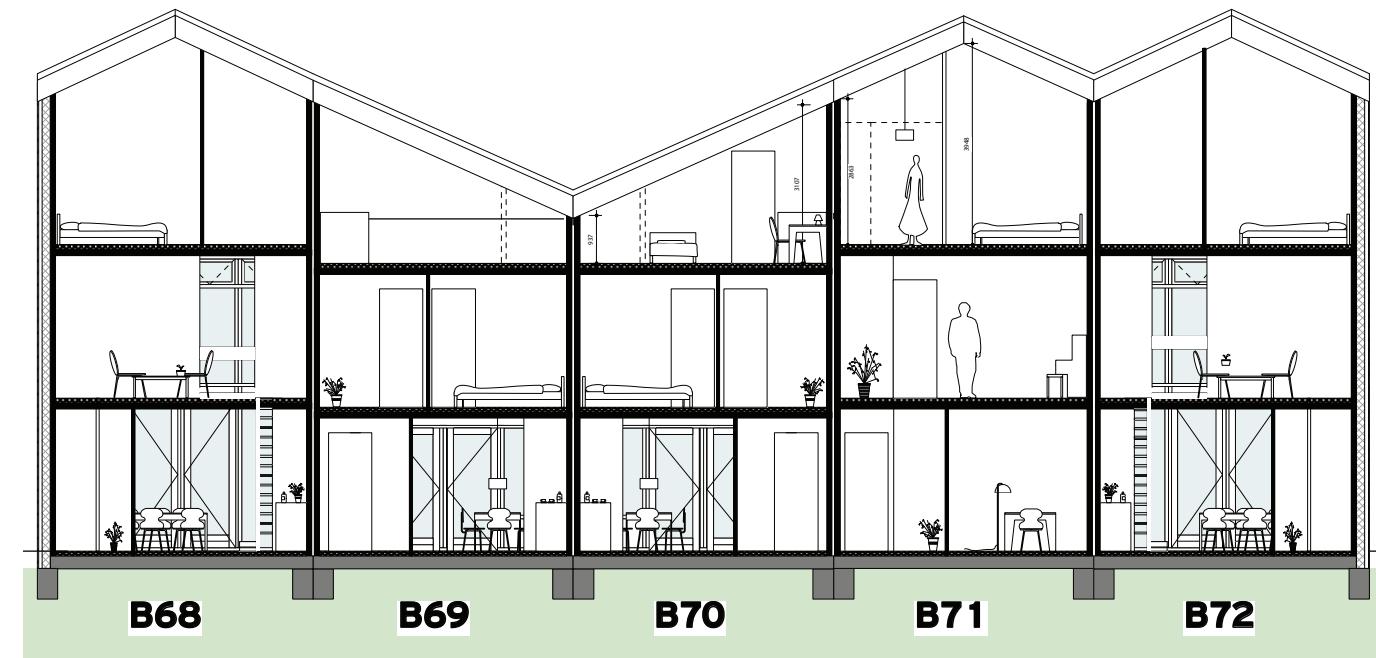
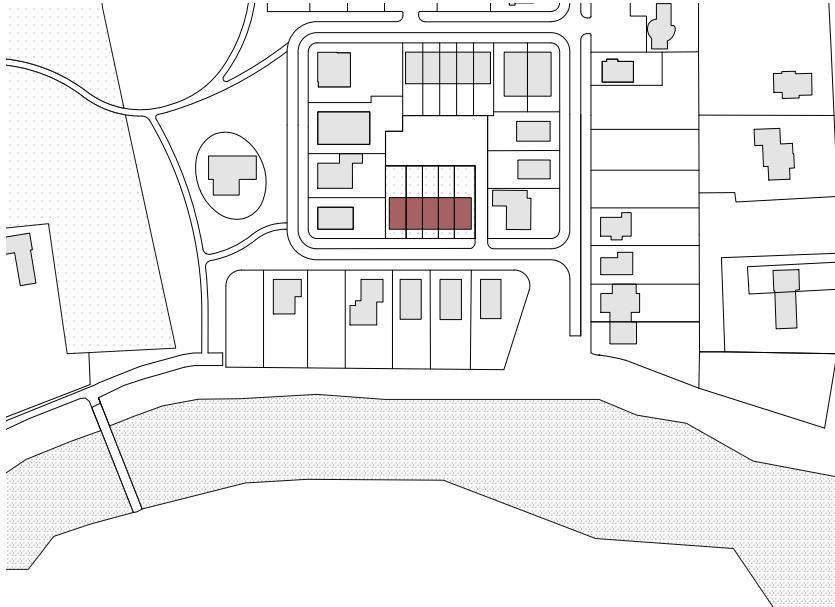
**no.8**



# no.8



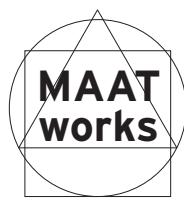
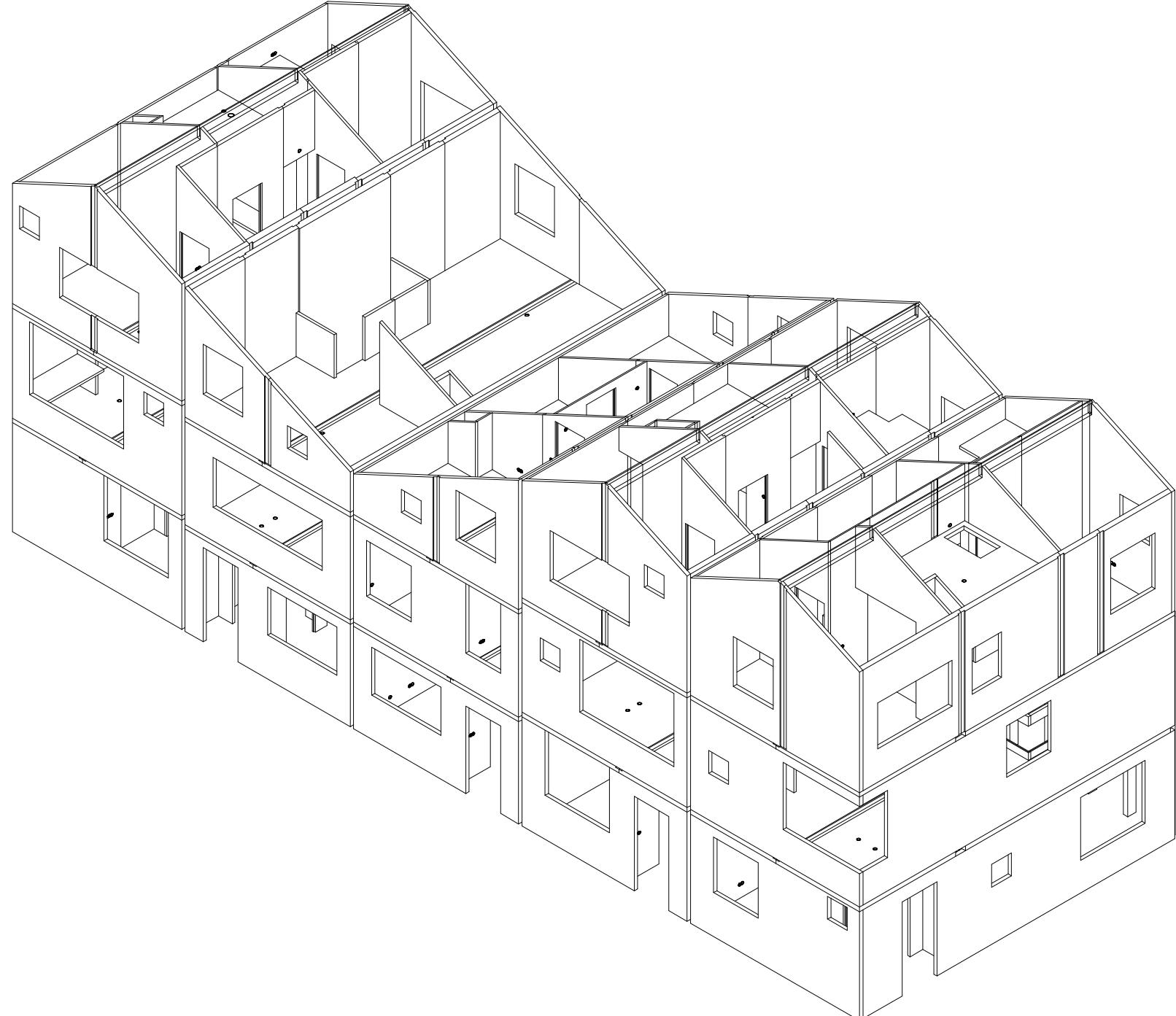
# concept 'my wooden house' in Nijmegen

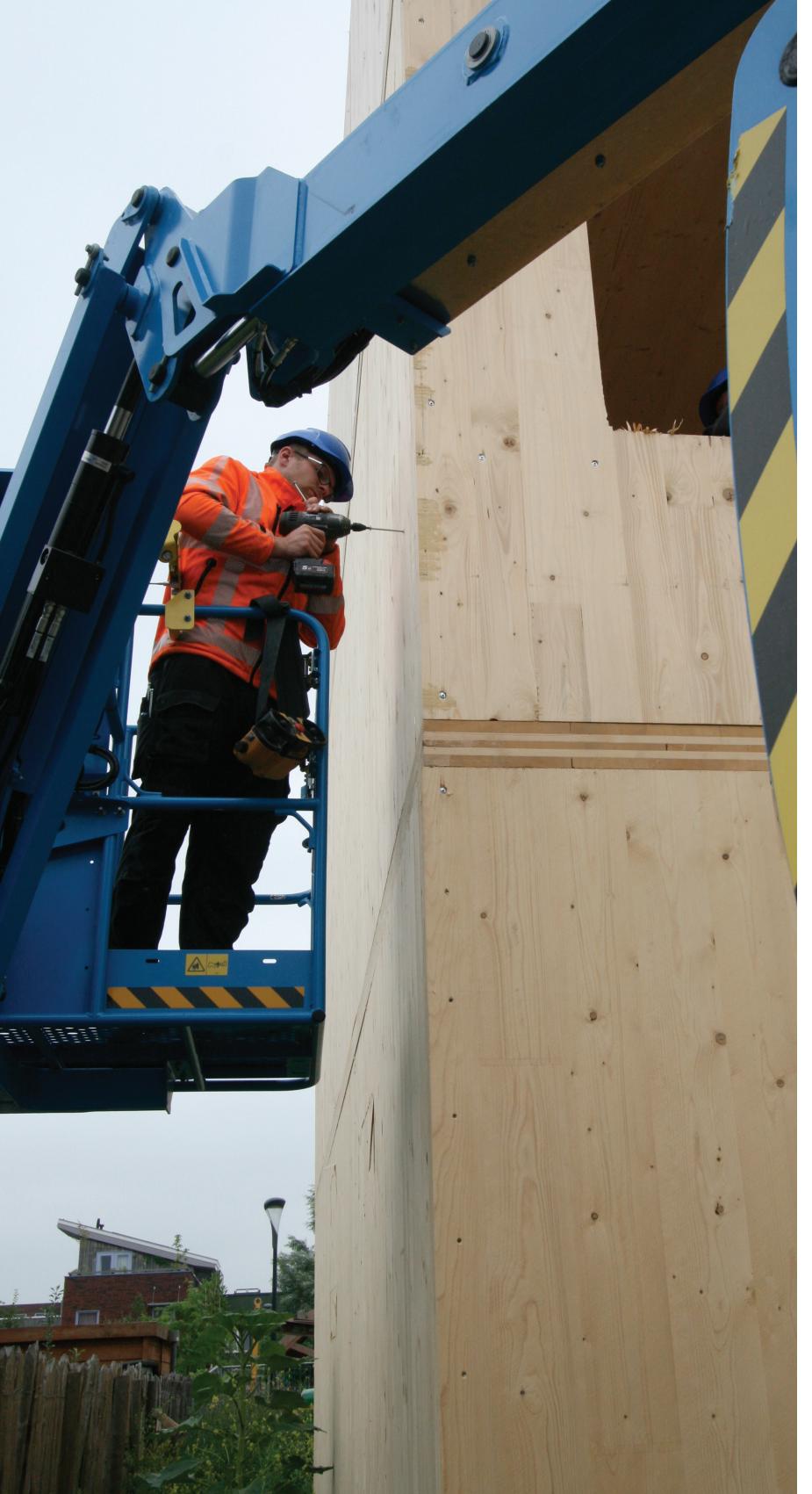


**MAAT  
works**



MAAT  
works





MAAT  
works

# CO2 storage

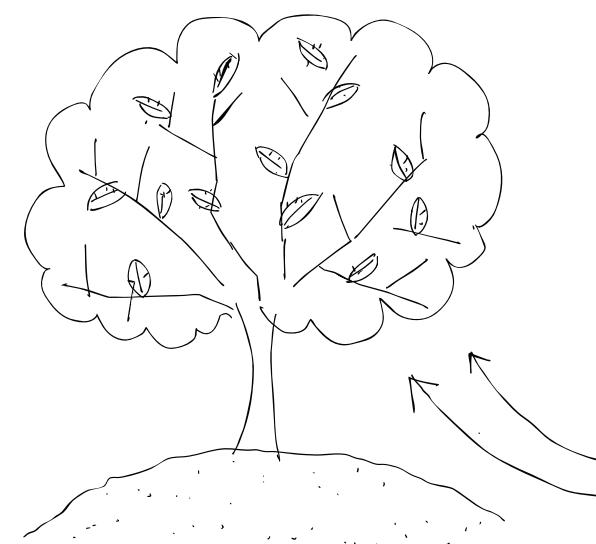
**wooden house - gross floor area**      **205 m<sup>2</sup>**

**total volume timber**      **65 m<sup>3</sup>**

**total volume biobased materials**      **96 m<sup>3</sup>**

**total CO2 storage**      **59.077 kg**

**equivalent to 164 x return flight Amsterdam - Bilbao**



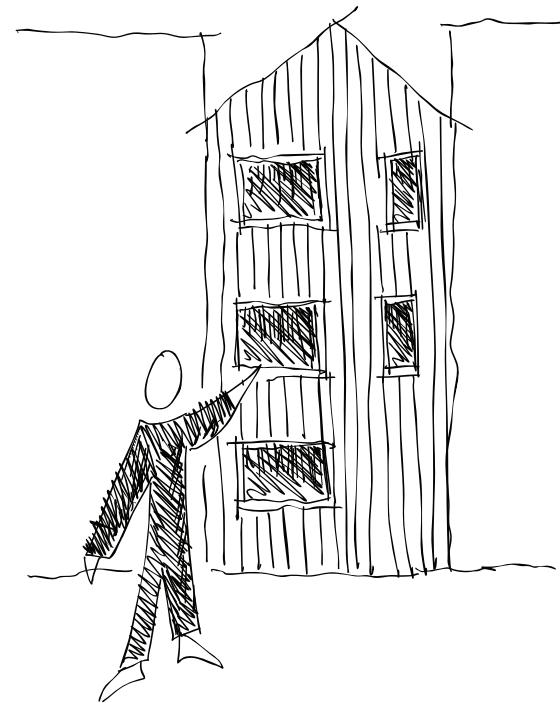
**CO2**



# a little change

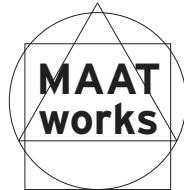
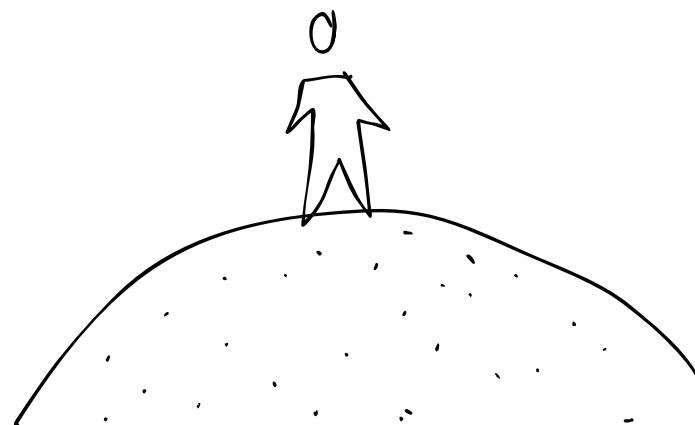
**marcel elsenaar, resident of a wooden house:**

**"since I have been living in the wooden house you designed, I notice that I have changed. Small decisions, as which paint I use for the wall, I take more consciously".**



**"a dream you dream alone is only a dream,  
a dream you dream together is reality"**

**yoko ono**



**"a dream you dream alone is only a dream,  
a dream you dream together is reality"**

**yoko ono**

