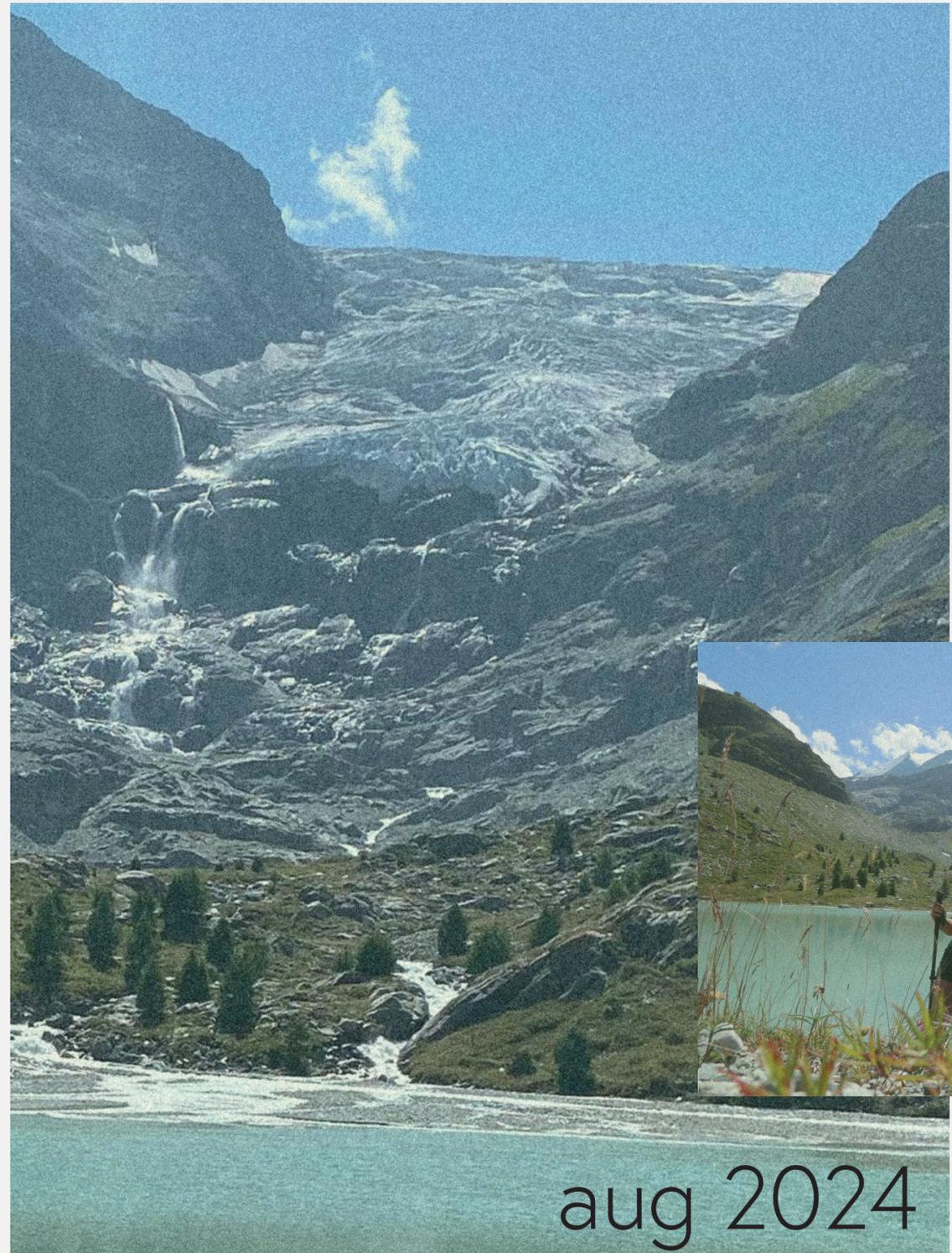




farms for the future

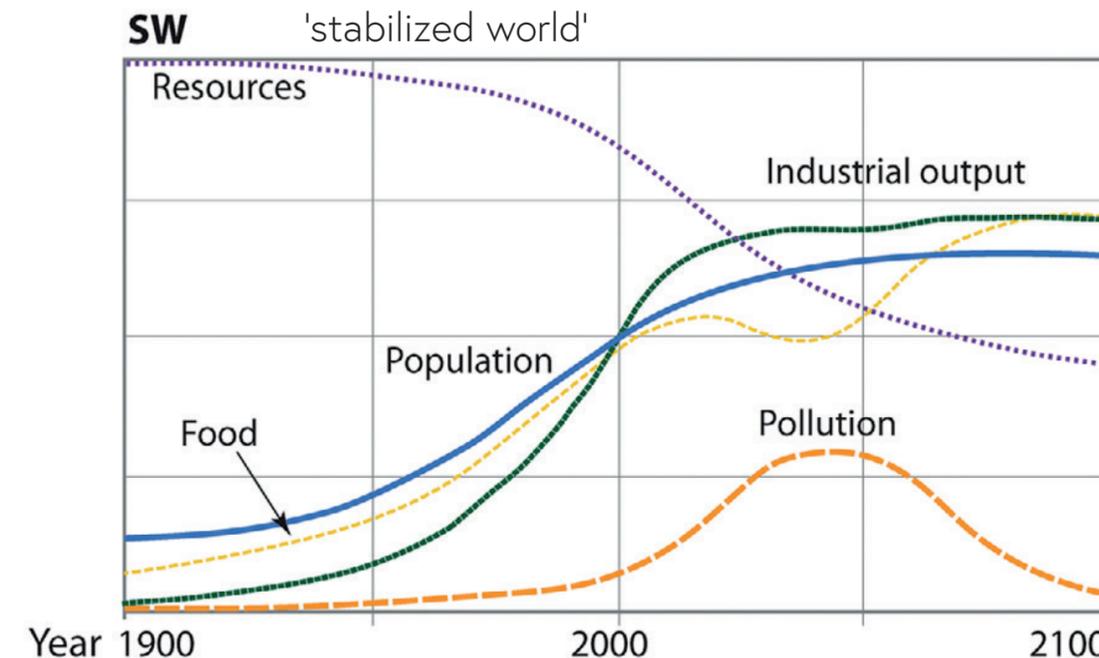
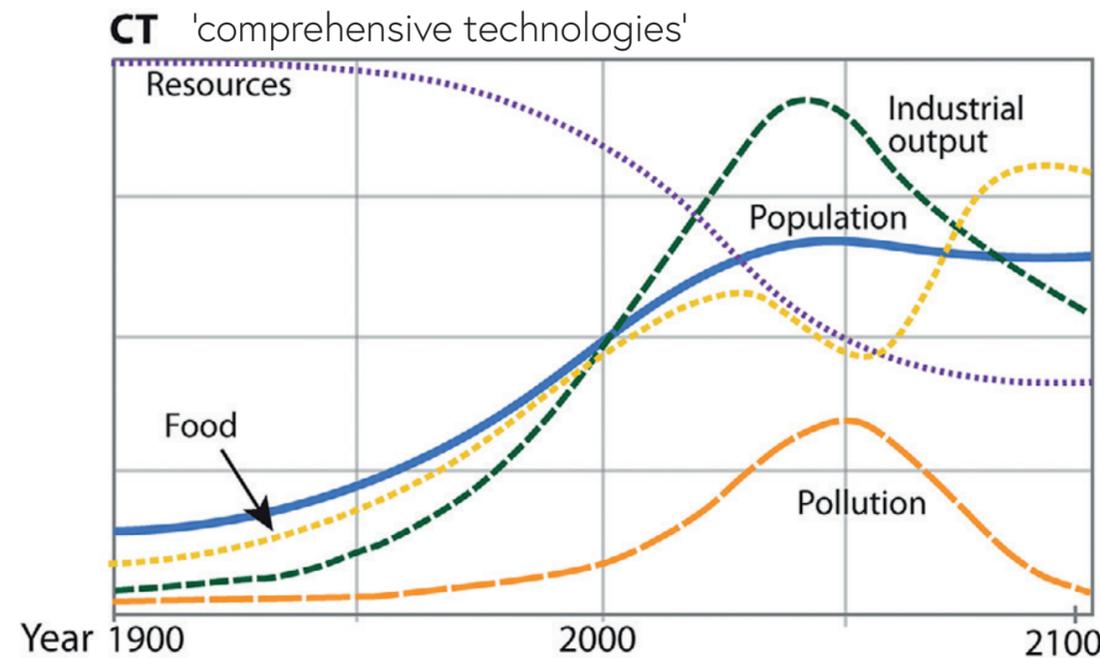
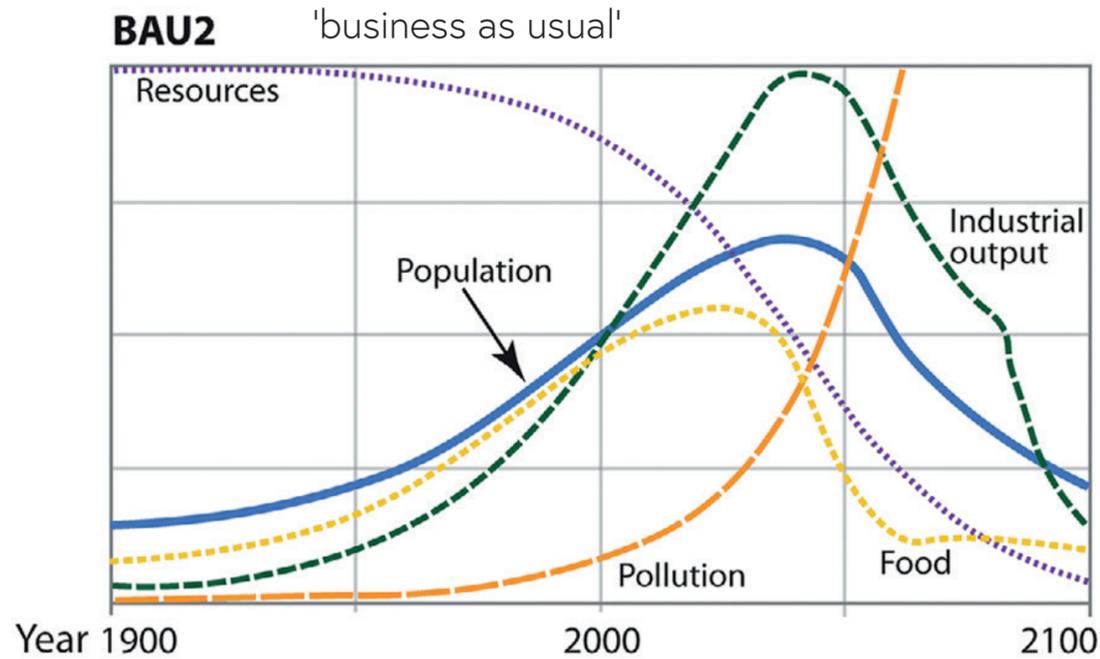
P5 - Anna Lugard - Ecologies of Inclusion Studio

learning > pretty pictures



Update to Limits to Growth (Herrington, 2020)

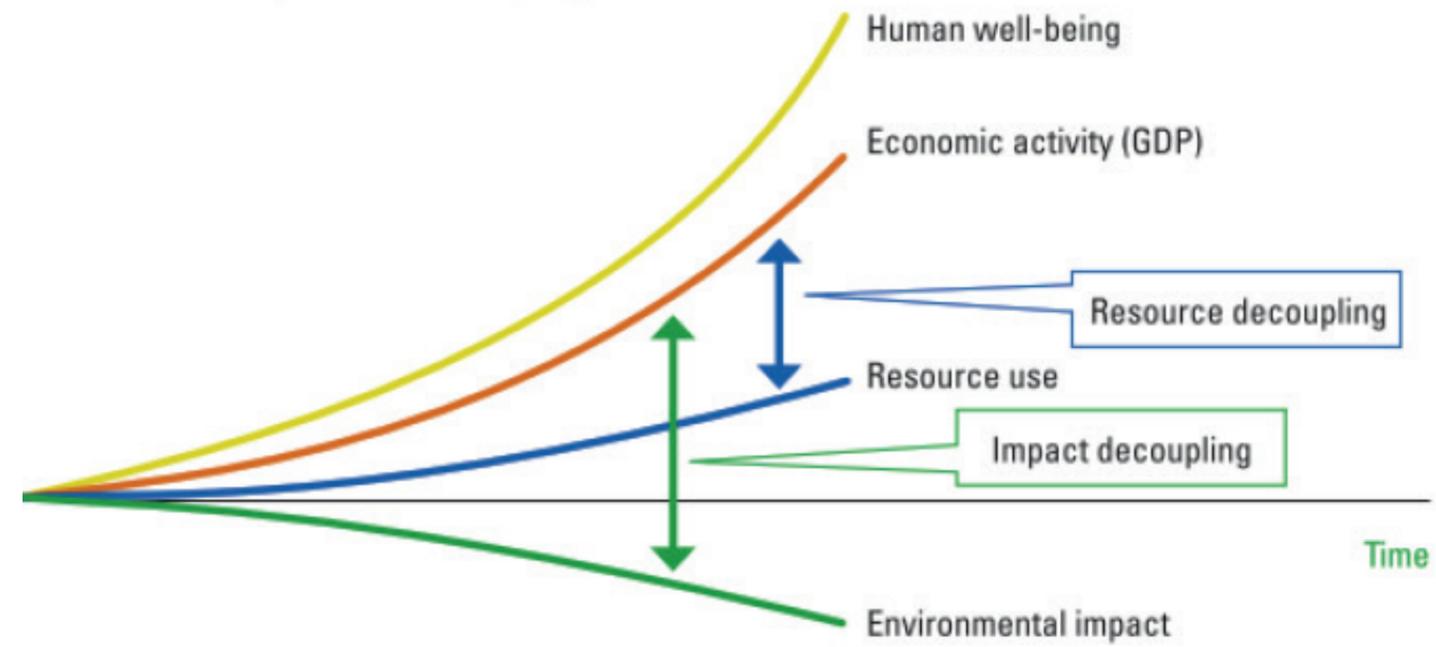
pollution of our waters and soils, the destruction of ecosystems and the depletion of planetary resources are thought to be just as threatening for our future, as climate change.



BAU2	Double the natural resources of BAU	Collapse due to pollution (climate change equivalent).
CT	BAU2 + exceptionally high technological development and adoption rates	Rising costs for technology eventually cause declines, but no collapse.
SW	CT + changes in societal values and priorities	Population stabilizes in the twenty-first century, as does human welfare on a high level.

experts are calling for:

decoupling



decoupling growth and harm
decoupling wellbeing and growth



lesson learned at

food forest + Aardehuizen Olst

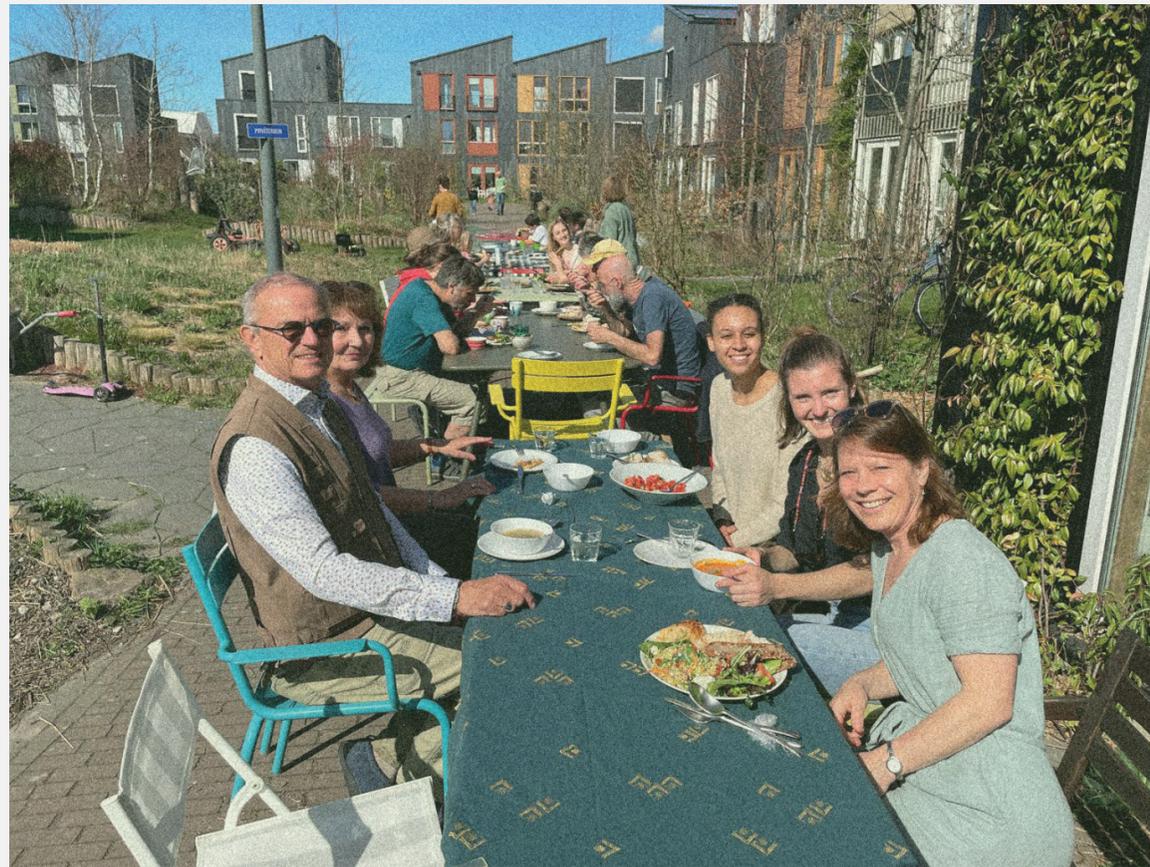


teaching people about sustainable housing practices

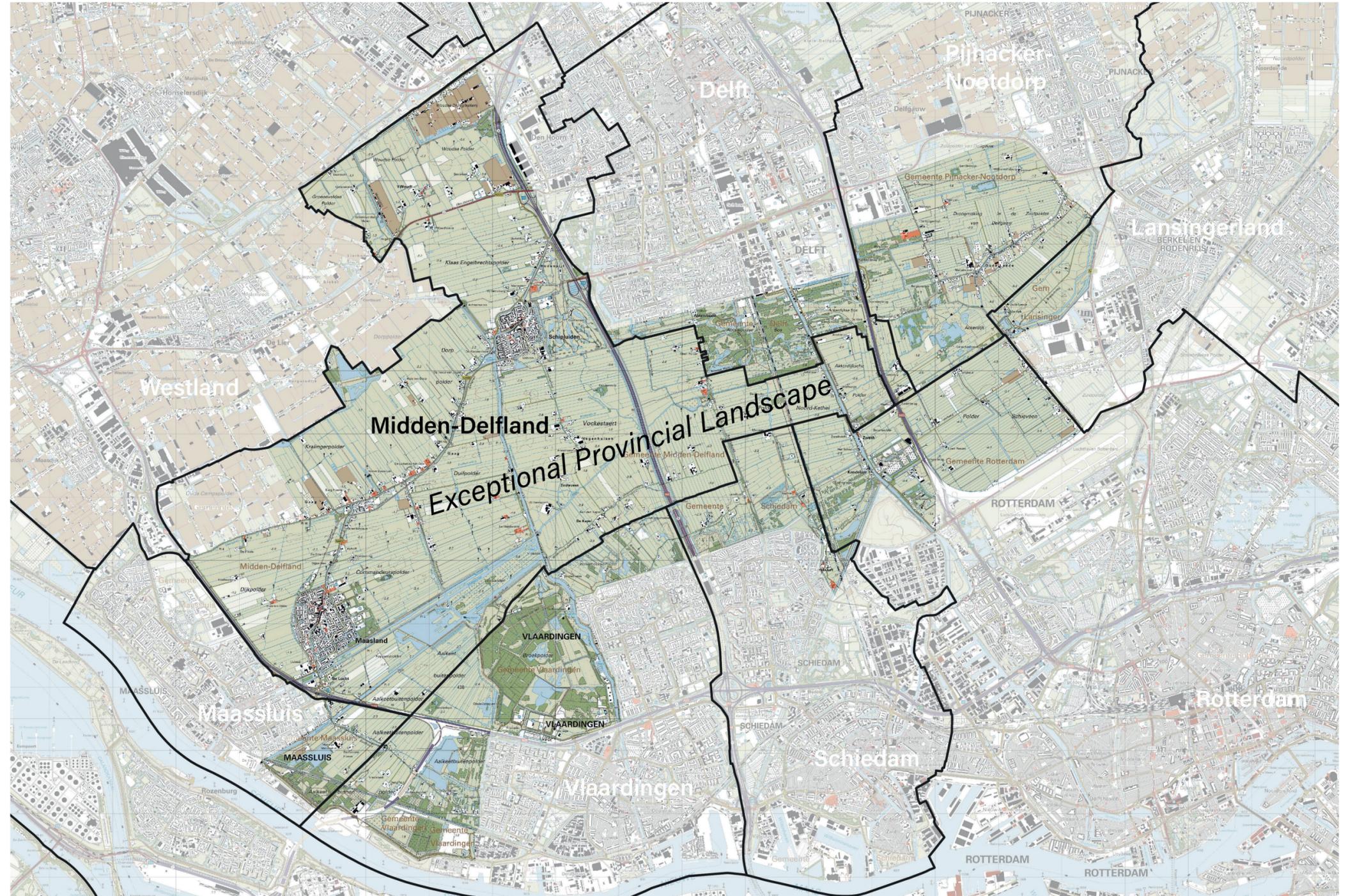
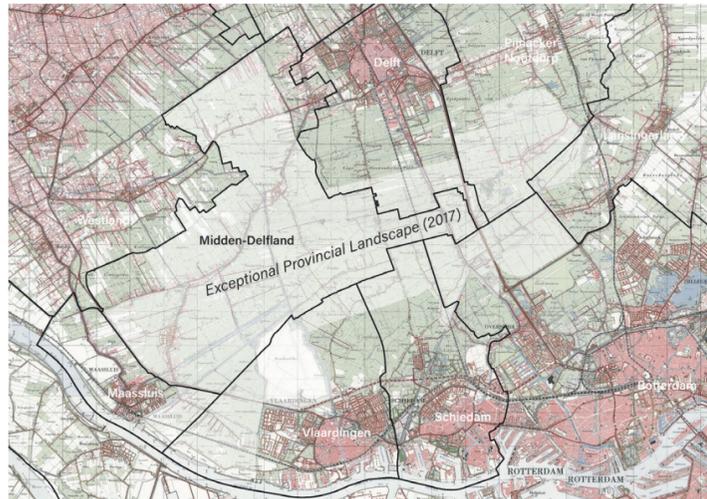


lesson learned at

Warmoestuin, Rijswijk



showing their friends, family and fellow neighborhood inhabitants a desirable sustainable lifestyle example



the assignment: a master plan and a housing project that contribute to a sustainable future for Midden Delfland.
theme: The Ecologies of Inclusion



lesson learned at

het boeren oogstfeest (harvest festival)



the people of Midden-Delfland are united by their love for the region: nature, landscape, heritage, tradition



Adrianushoeve next to lowered A4 highway



water storage plan by architecture office Zones Urbaines Sensibles

finding

local interests overlooked

The rich history of Midden-Delfland

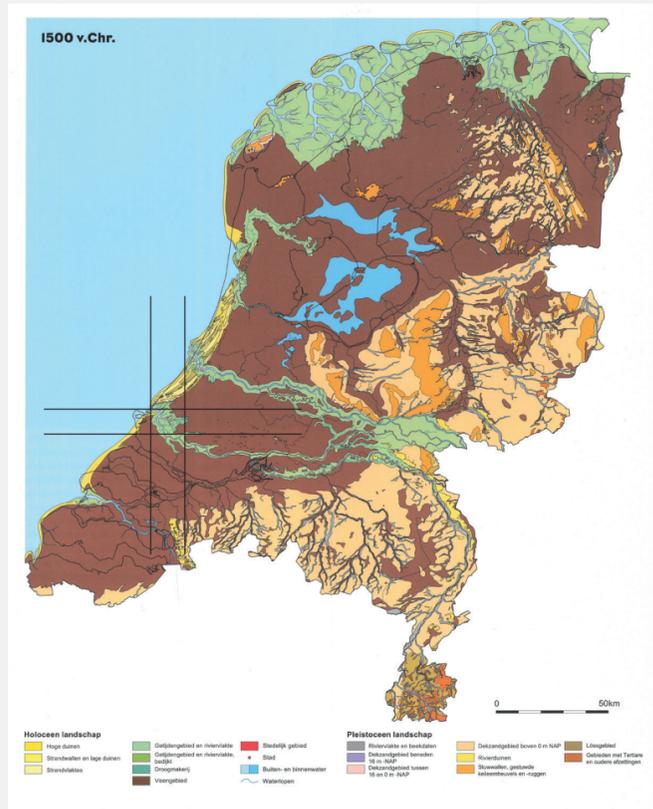
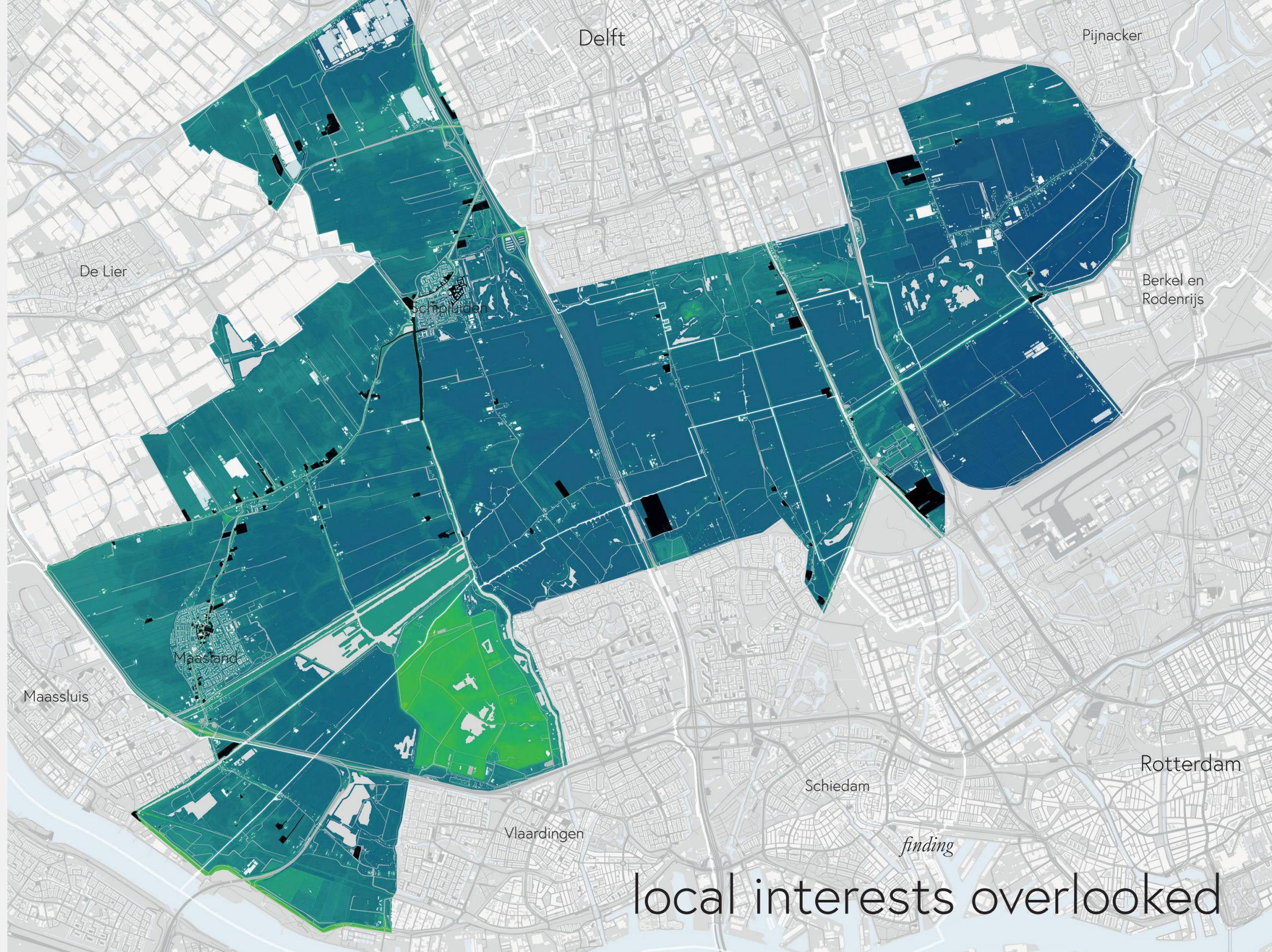
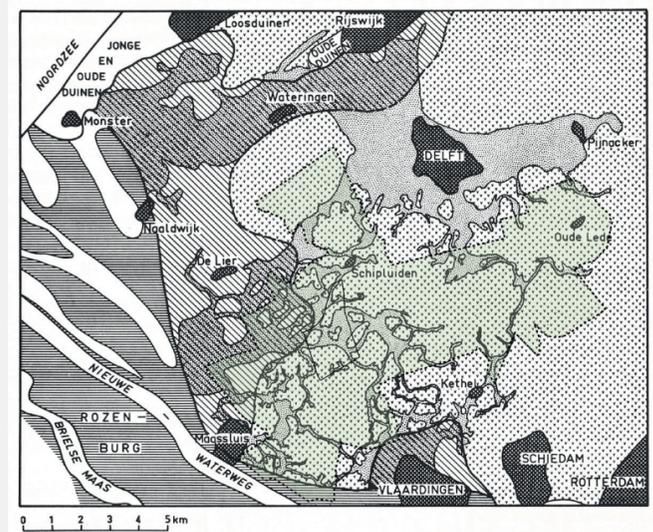


FIG. 8. De afzettingen in het Westland (naar: Faber, 1960; enigszins gewijzigd).



finding
local interests overlooked



Delft

Pijnacker

De Lier

Schipluiden

Berkel en Rodenrijs

Maasland

Maassluis

Rotterdam

Schiedam

Vlaardingen

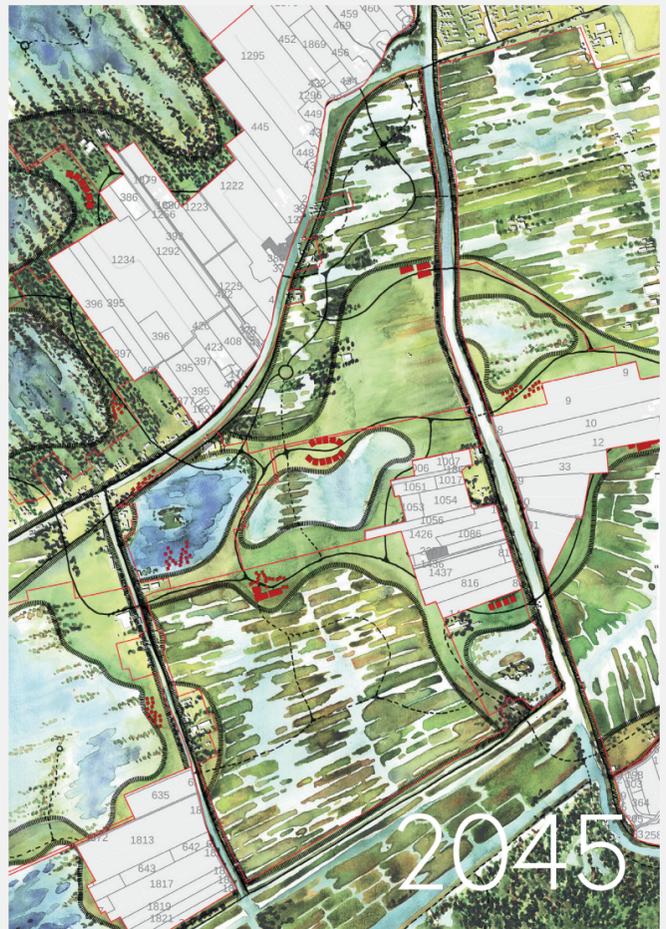
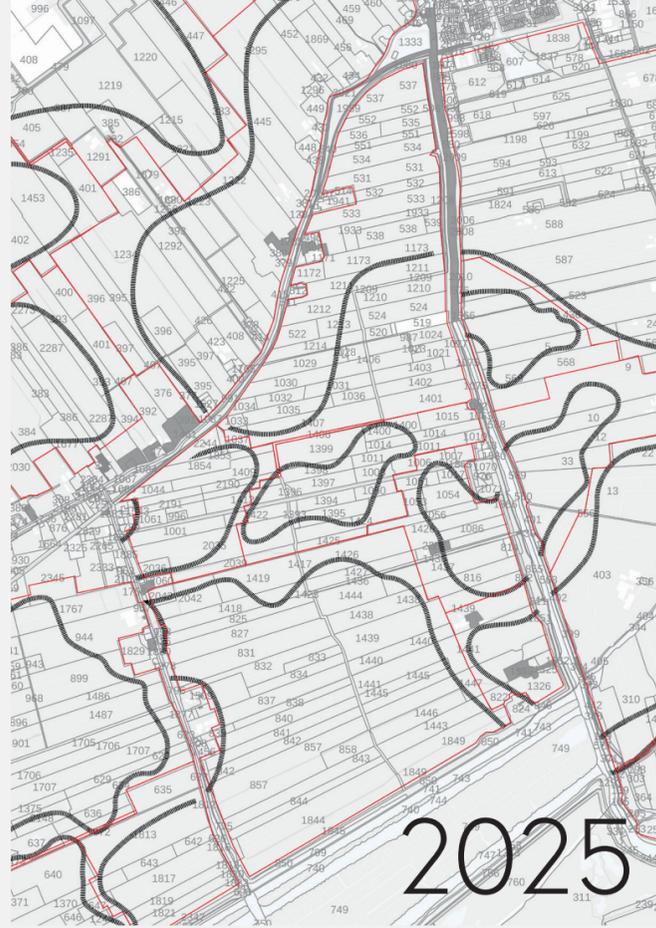
solution proposed:

regional master plan

phasing

The smaller water storage zones can be developed separately. This makes the plan more responsive to local developments.

Although it may be less efficient at large scale water storage, it may be more viable for local support.





lesson learned from

Midden-Delfland Vereniging



Frank Dietz
Environment Working
Group



Martin Visser
Board Secretary

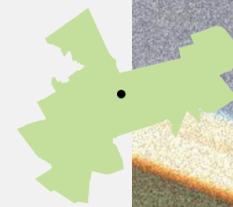
“People are open to change, but new projects should benefit Midden-Delfland and not just the surrounding cities”

“...No more building in greenfields”

“...We need housing for elderly”



Proposals in greenfields will run into a lot of resistance, and there is a need for elderly housing



finding

future superfluous structures



it's estimated that in the next 10 years
1 in 3 dairy farms will disappear





lesson learned at

Lenteland regenerative farming gathering



"when farmers accept the termination buy-out premium (uitkoopregeling), they are obligated to demolish their cattle barns"

ANALYSE

Weer een uitkoopregeling voor stikstof, terwijl de vorige weinig opleverde. 'Het is veel geld voor een beperkte reductie'

Stikstof Een nieuwe uitkoopregeling voor veehouders moet helpen Nederland van het slot te halen. Maar de opbrengst van de vorige uitkoopregeling viel tegen en dat kan nu nog minder zijn, waarschuwen experts.

Rik Wassens en Wouter van Loon

27 april 2025 • Leestijd 3 minuten

Het kabinet-Schoof wil wéér veehouders uitkopen. Het is de belangrijkste concrete actie uit het vrijdag gepresenteerde stikstofplan van de ministeriële commissie die Nederland 'van het slot' moet halen. Dit jaar besteedt het ministerie van Landbouw nog eens 750 miljoen euro aan een opkoopregeling, gericht op veehouders met „de meest urgente stikstofproblematiek”.

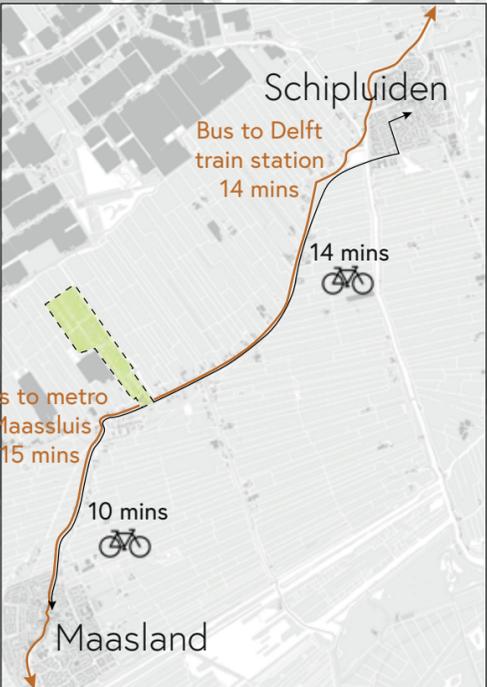
De afgelopen jaren stak de rijksoverheid al 3 miljard euro in twee grote uitkoopregelingen voor de landbouwsector. Aan zogenoemde 'piekbelasters', de drieduizend veehouderijen die het meest bijdragen aan de stikstofproblematiek, bood de staat 120 procent van de bedrijfswaarde. Kleinere uitstoters konden zich laten uitkopen voor 100 procent van de waarde.

location

goal: proof of concept

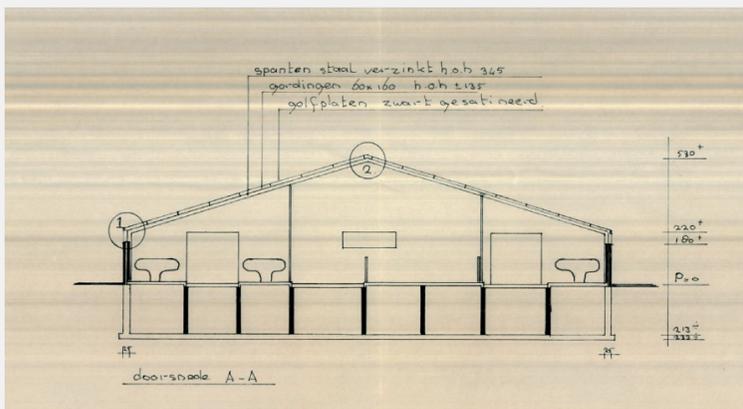
location preferences:
Relation to neighbors

Active linth structure
and rural community
cluster





1 day =
20 liters of milk
77 liters of manure and urine
= 3 m³ per cow per year



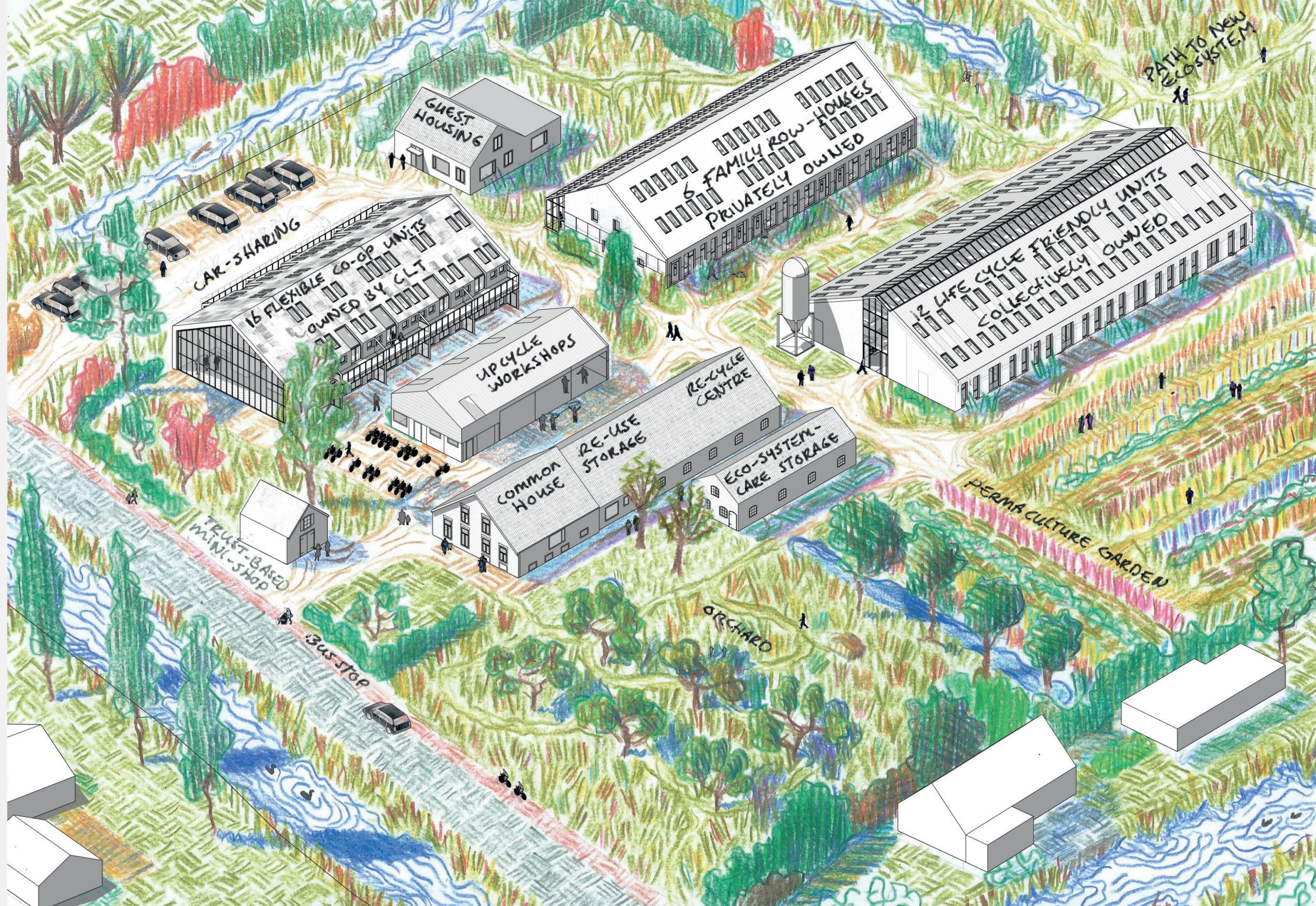
concept

Proof of concept:

transformation
prototype

from: an industrial
dairy farm

to: *an intentional
community* that aims
to live in *wellbeing*
while causing *minimal
harm*



target group

Profile: people interested in collective living on a farm.

Study results with >700 respondents conducted by erfdelen.nl initiator Pieter Parmentier

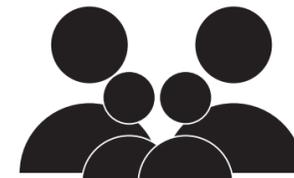
Erfdelen



37%



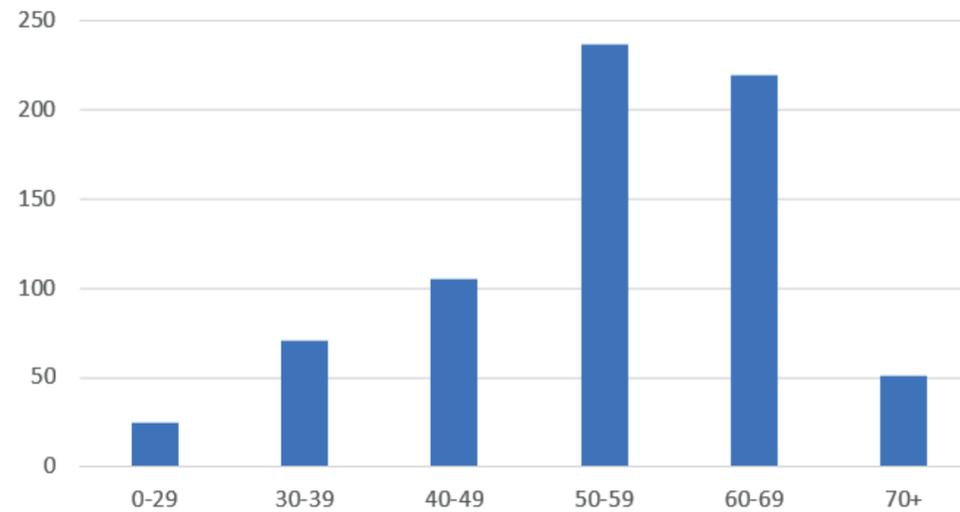
38%



16%



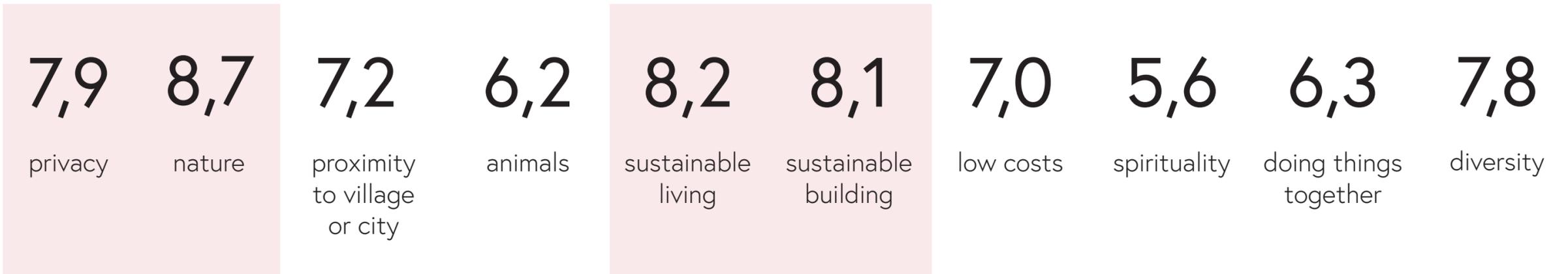
6%



78% willing and able to invest

54% interested in intergenerational living

other target groups:



design challenge

typical in size, layout, structure variation

building-to-farmland ratio



opportunity: value capturing

Farm size: 26 hectares,
80.000-100.000 euros
per hectare
+
Wealthy target group
=
chance to save
government ~2.6 million
euros for other uses



= 2.600.000,- euros

land use potential

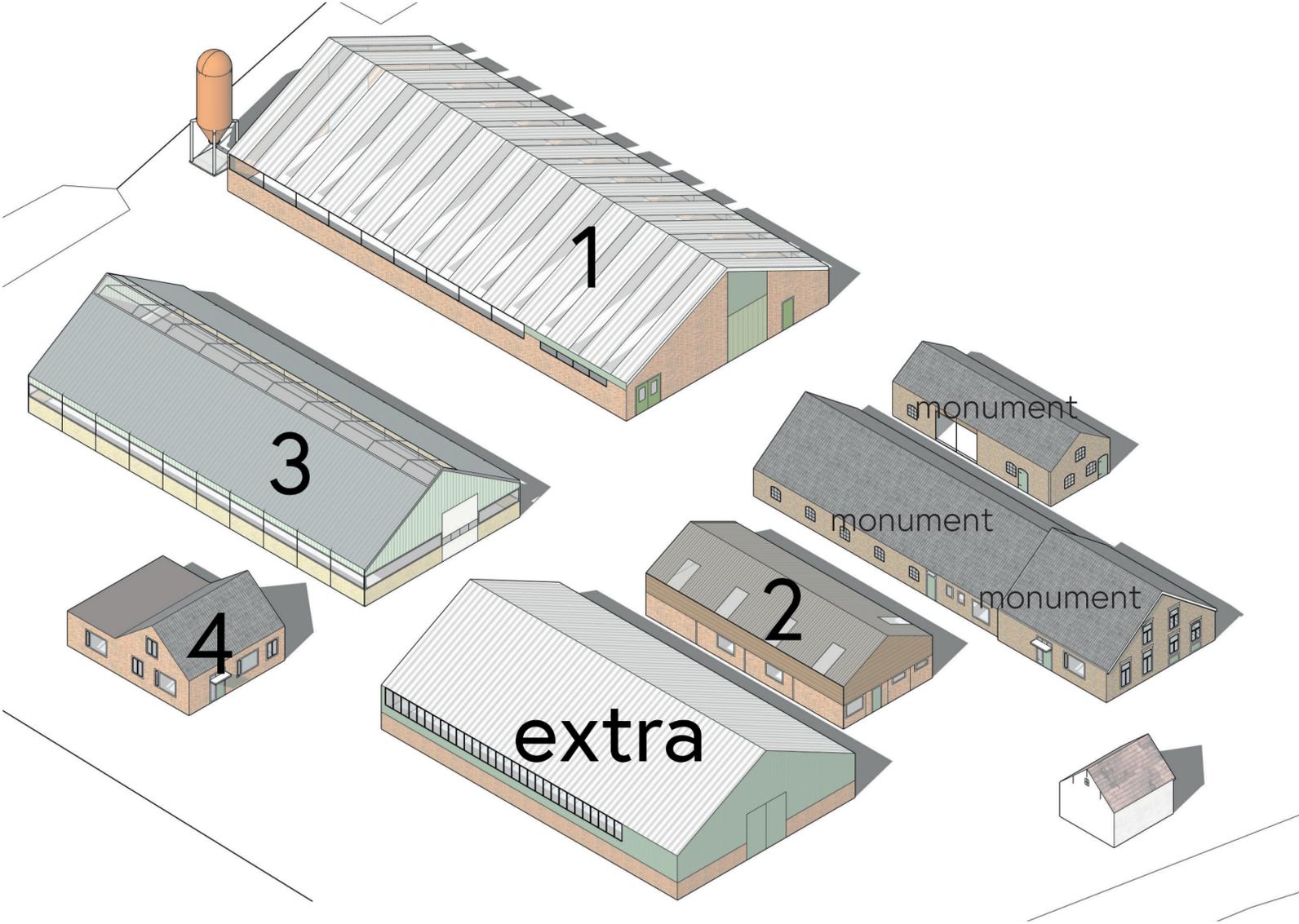
Farm size: 26 hectares,
80.000-100.000 euros
per hectare
+
Wealthy target group
=
chance to save
government ~2.6 million
euros for other uses

Ideal community size:
100-150 people

Added building using
barn materials

Total dwellings: 37

Cost per household:
~70,000 euros



$$2.600.000 / 37 = 70.000 \text{ per household}$$

land use potential

Prioritize nature over production

CSA: Community-supported Agriculture

successful concept:
Active farms in the Netherlands

Full-time salaried farmers and regular input from members

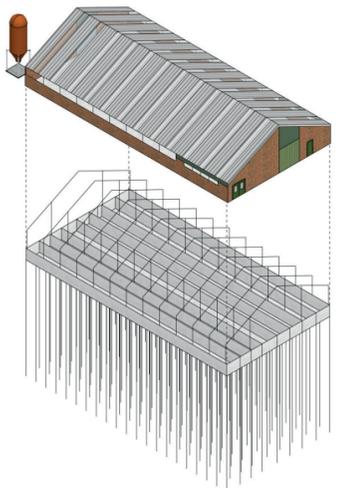
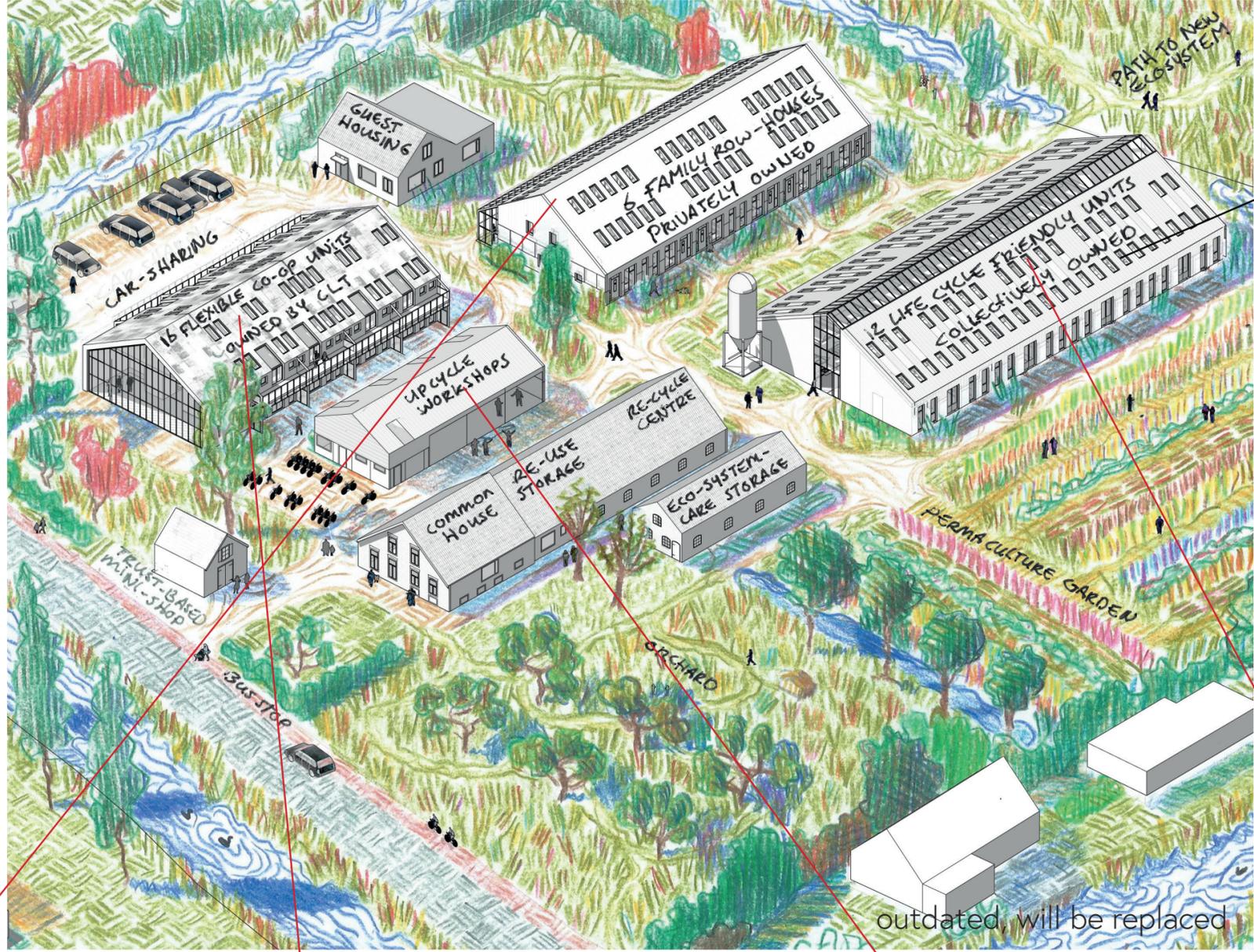


Herenboeren farm “De Vlinderstrik” in Midden-Delfland

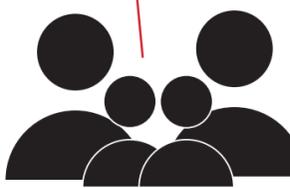


Documentary event of Lenteland: ‘Land voor het Leven’

plan overview



8x family row-housing
100-140 m²



12x affordable housing
70-100 m²

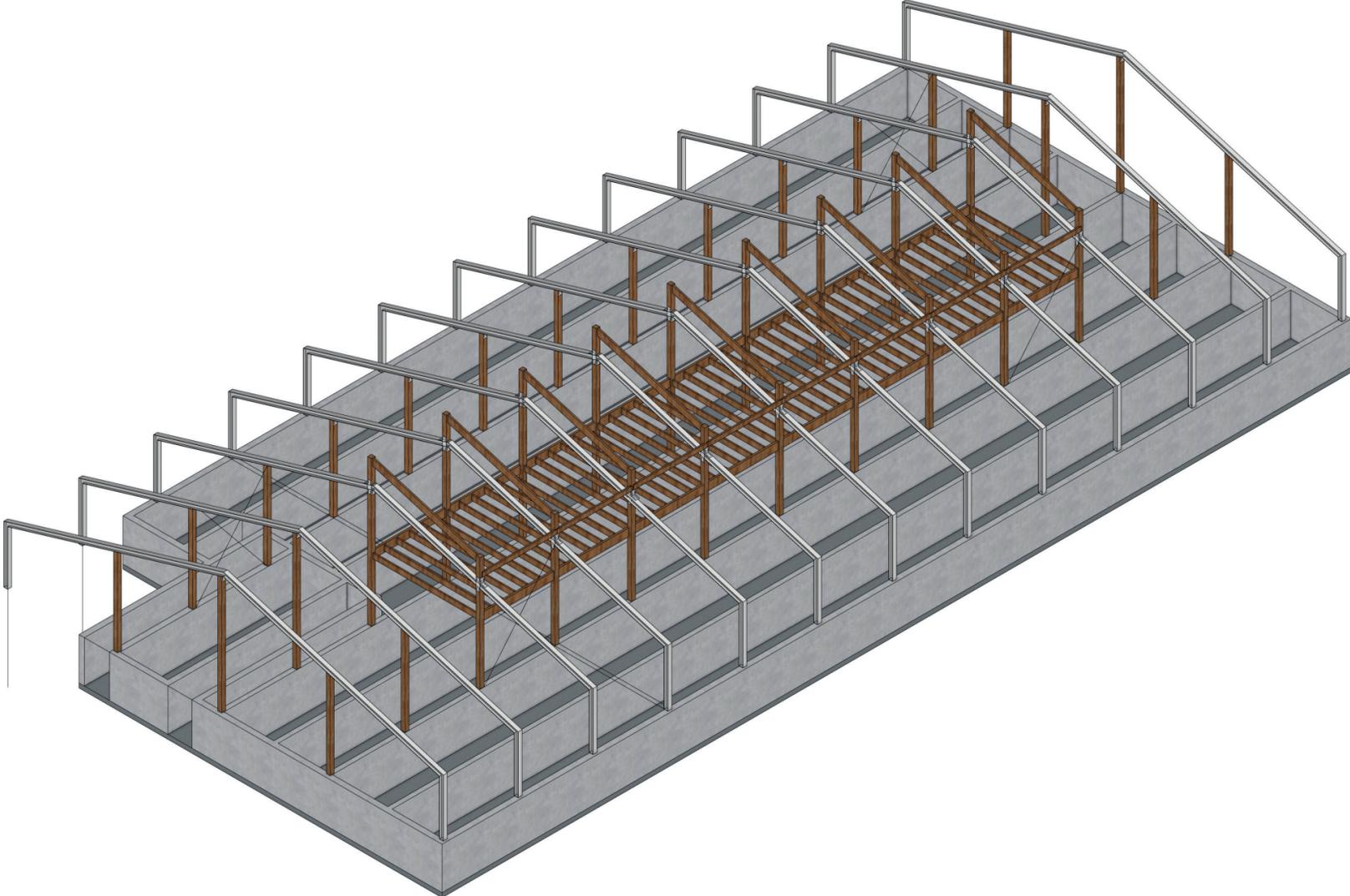
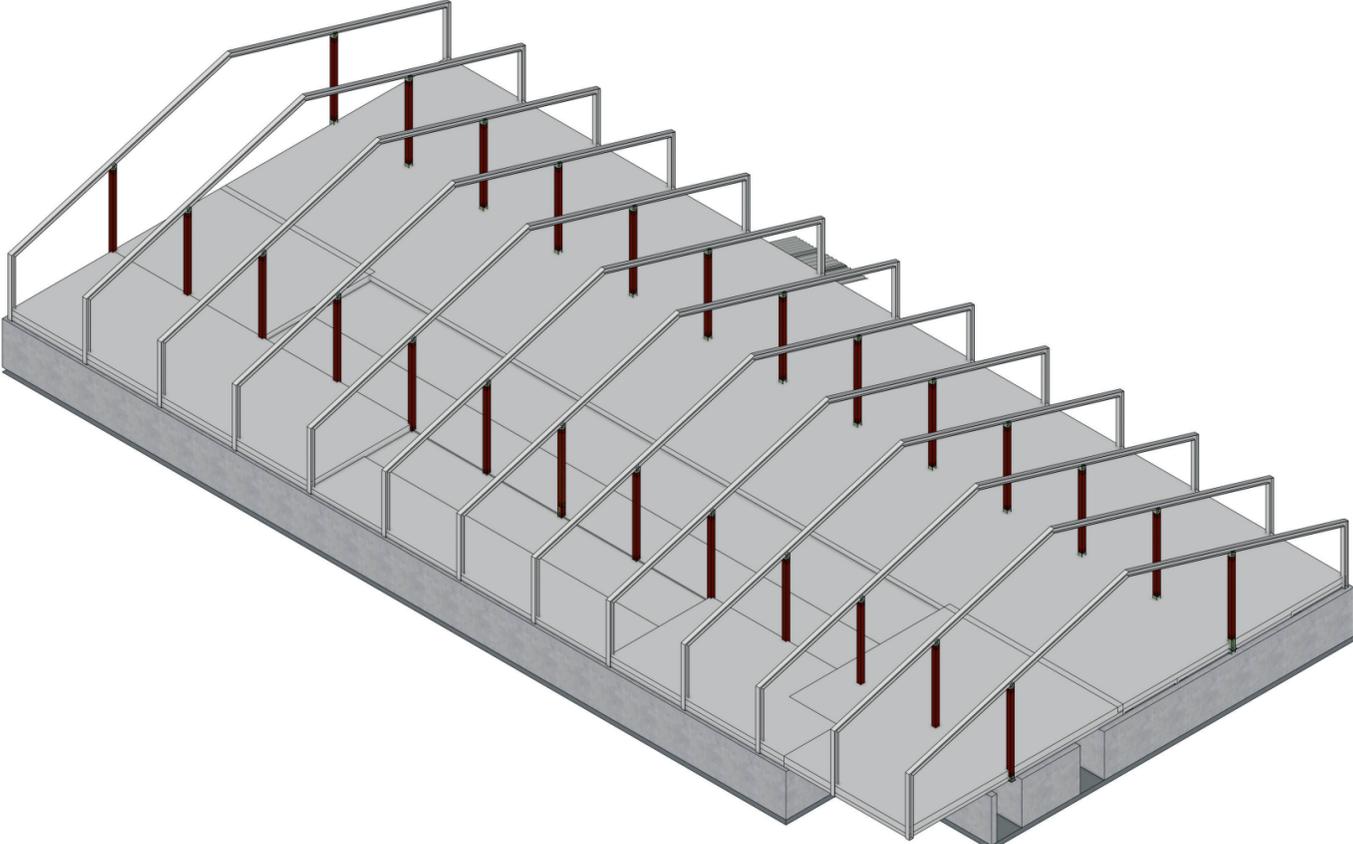


8x self-build studio
20-30 m²

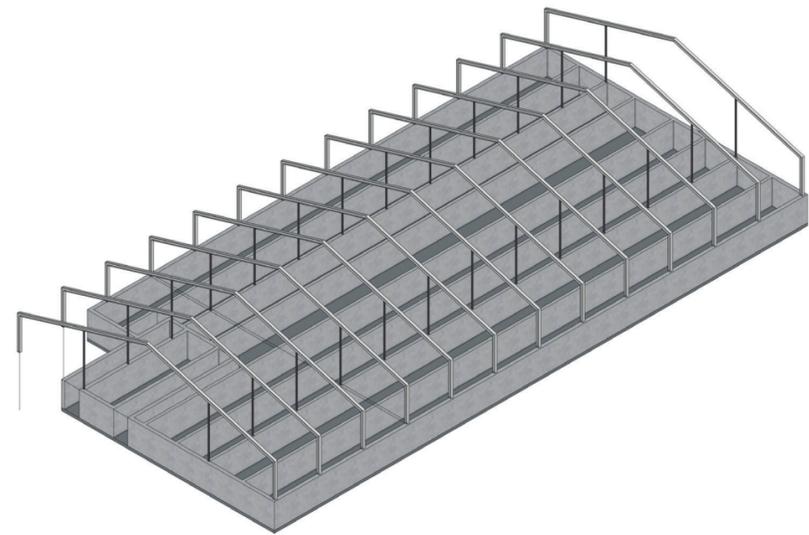


9x accessible housing
55-90 m²

SUPPORT STRUCTURE



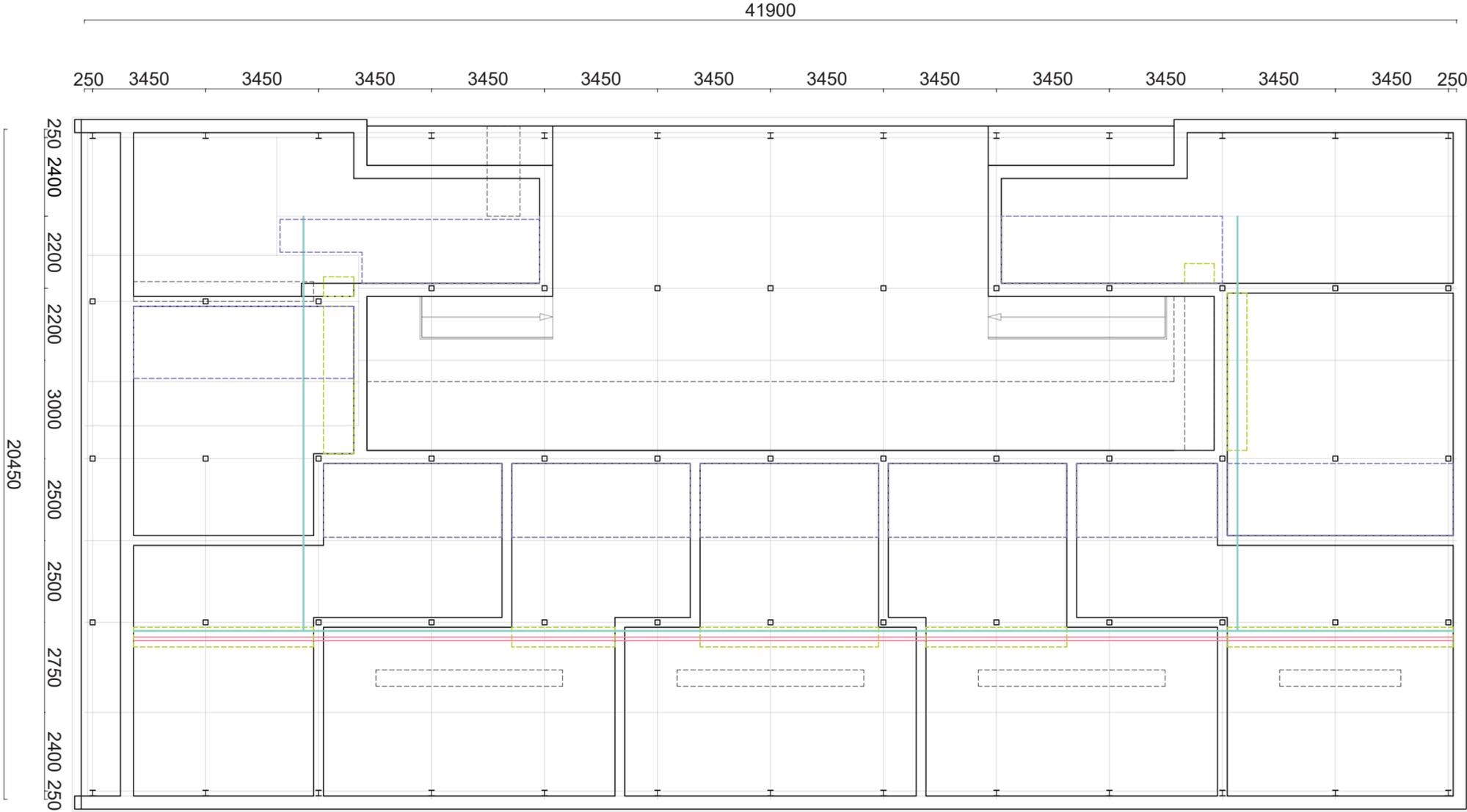
EXISTING STRUCTURE



CORE AND SHELL

zone toilet and main
sewage

zone basement and
fuse box

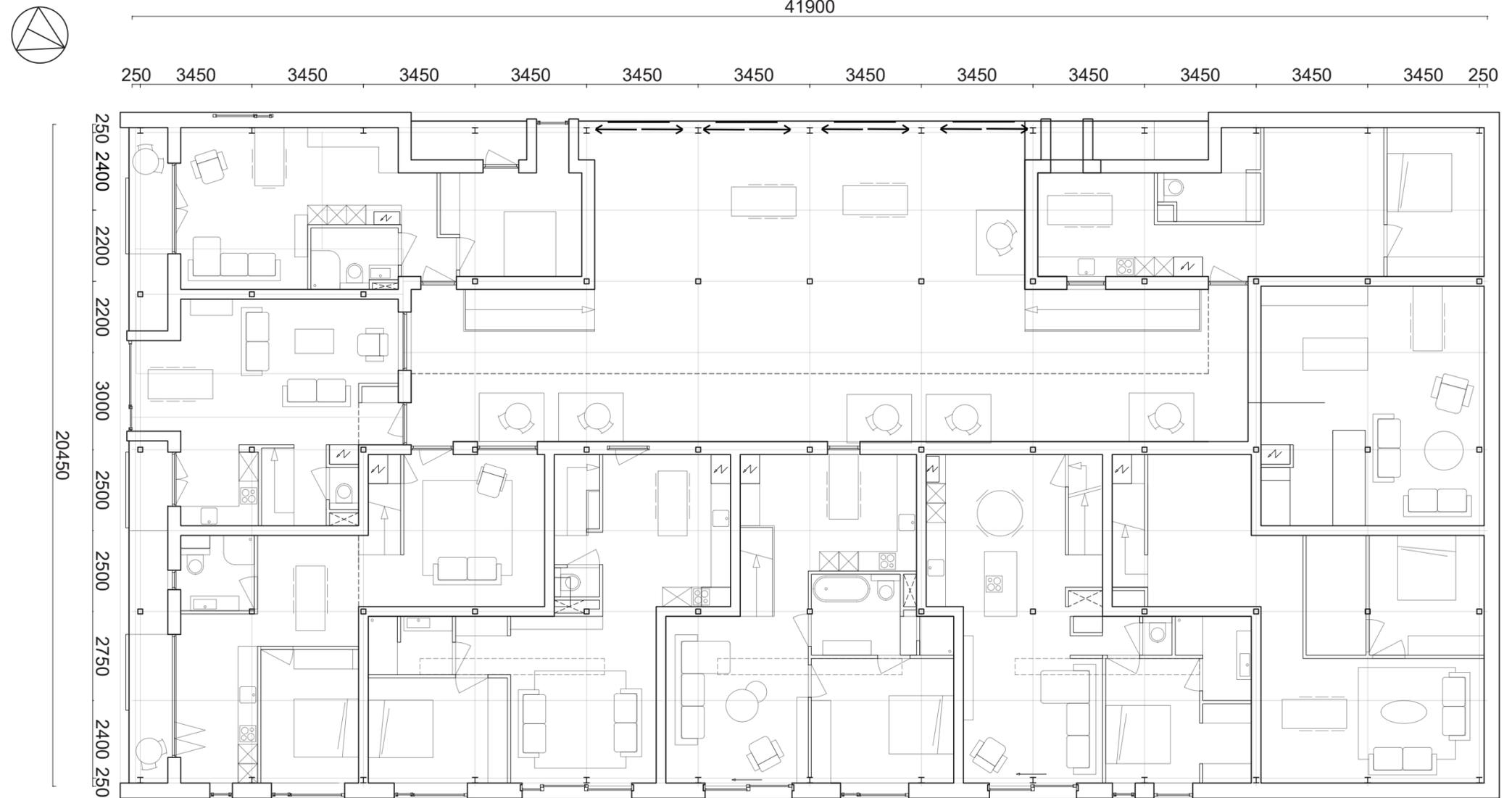


POSSIBLE FLOOR PLANS

enough width for two large rooms at facade:
barrier free/lifecycle
proof use is possible

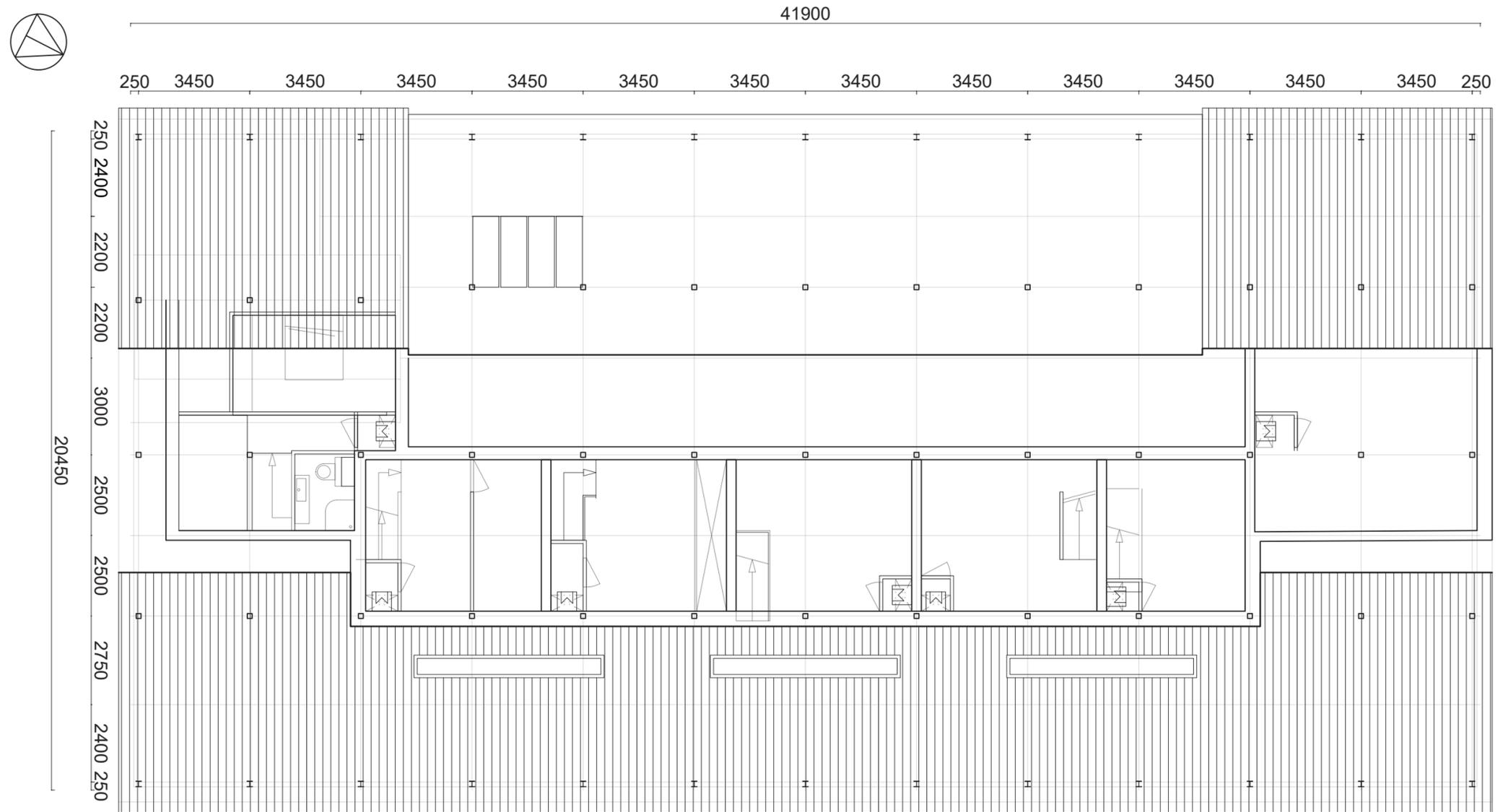
motivate to position
kitchen next to green-
house

incentivize appropriati-
on of greenhouse

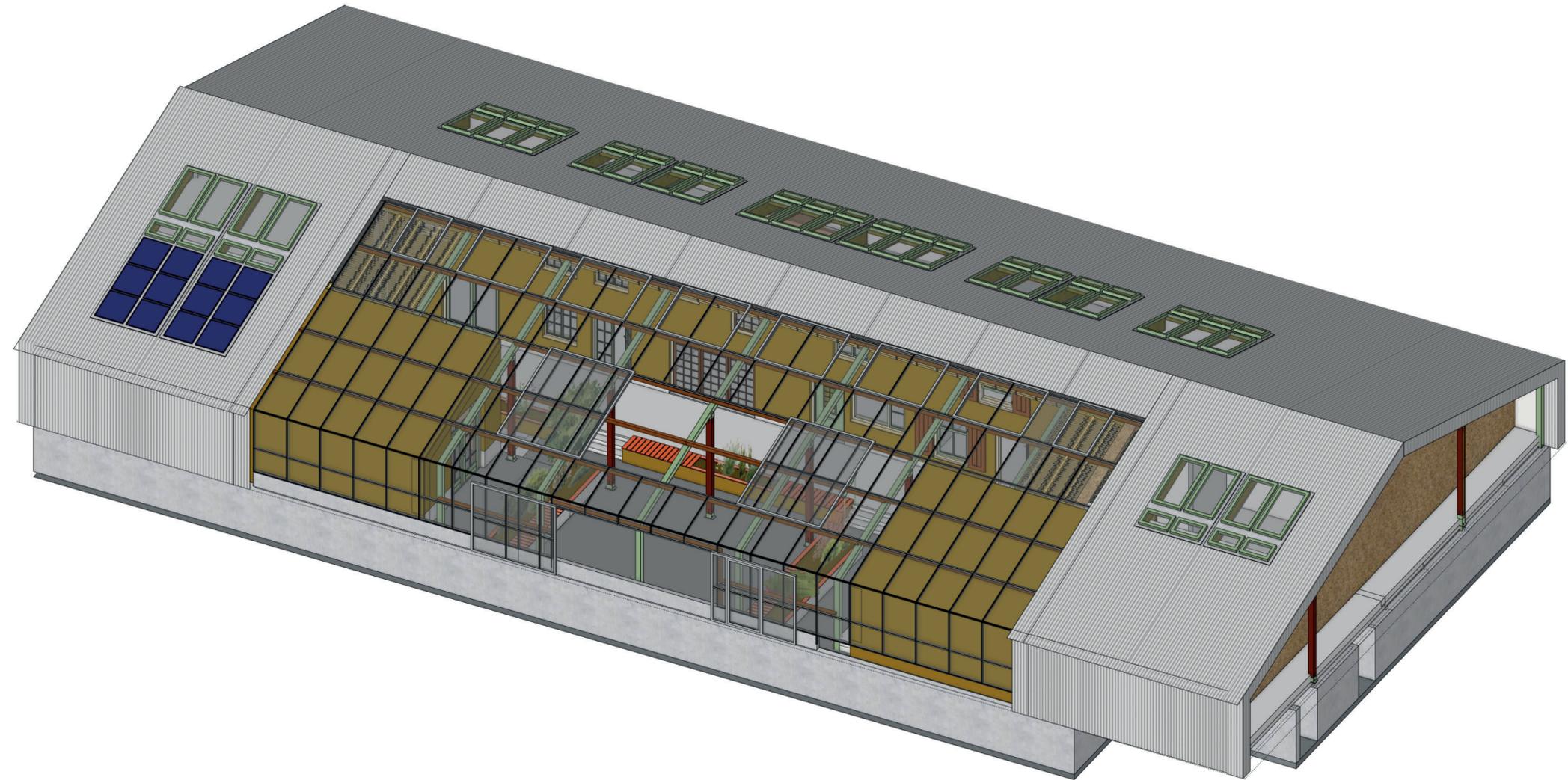


ENTRESOL

It's possible to use the house barrier-free comfortably, yet there is room for the creation of an entresol for some extra functions if desired.



SHELL





lesson learned at

sustainable collective housing Boschgaard

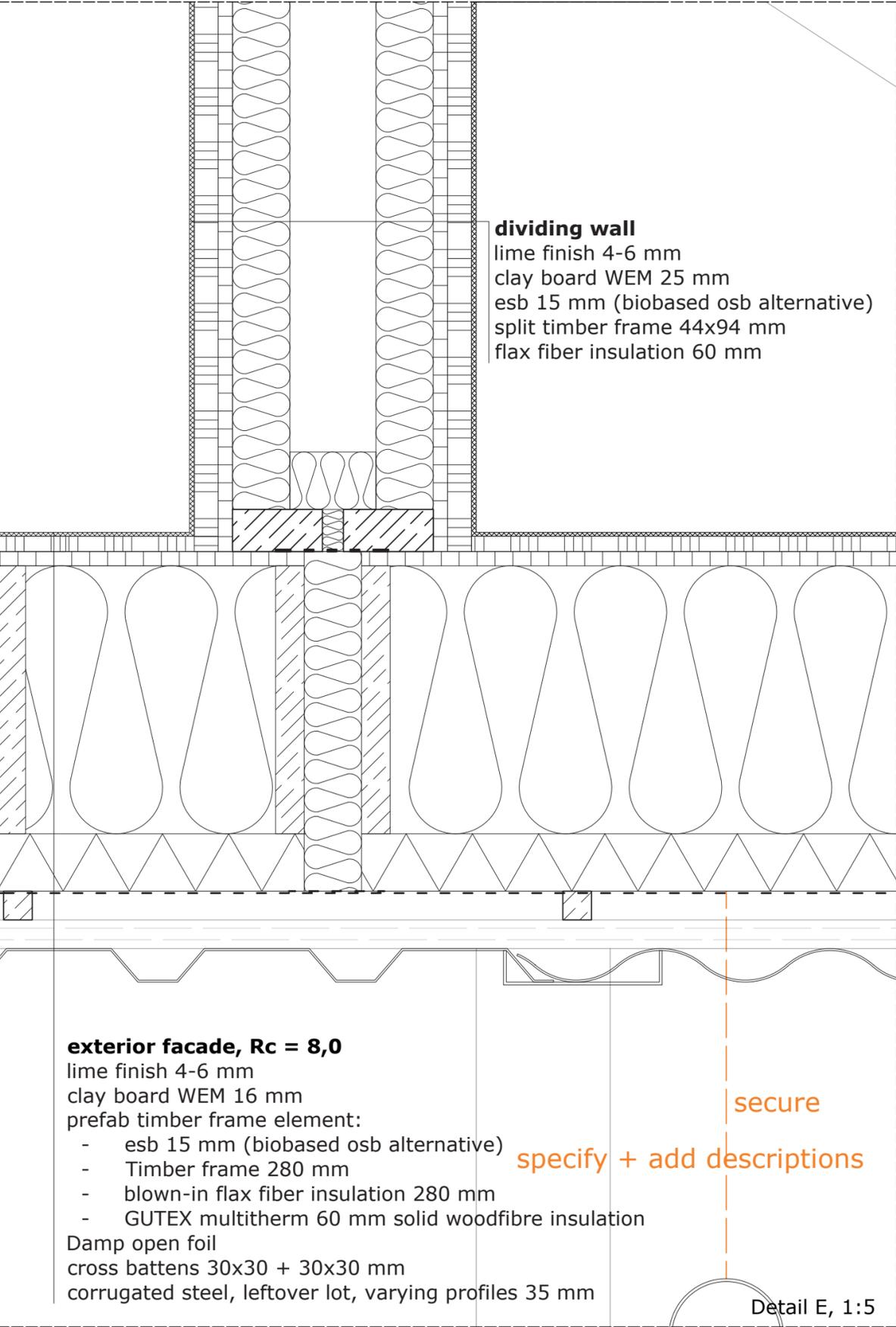
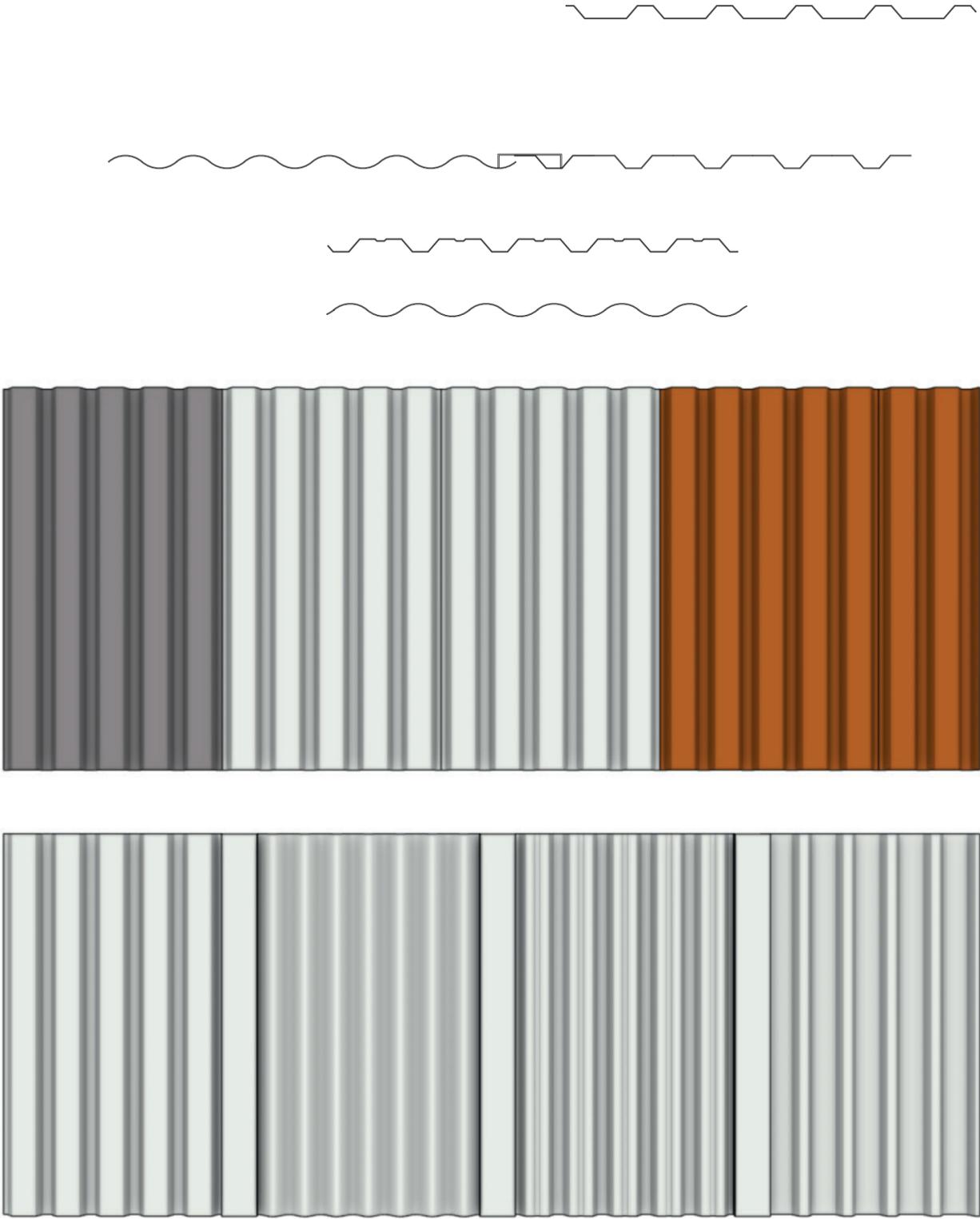


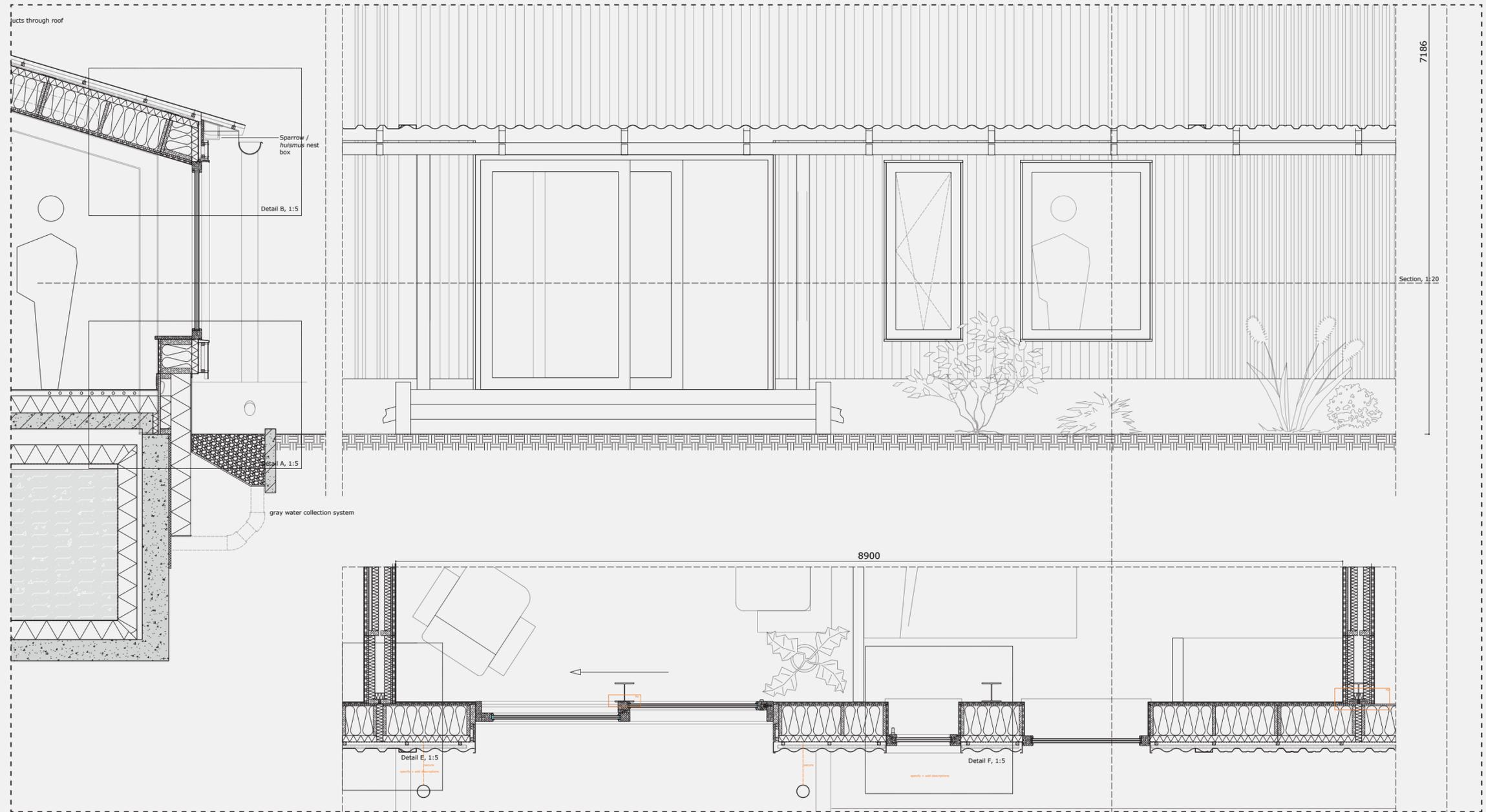
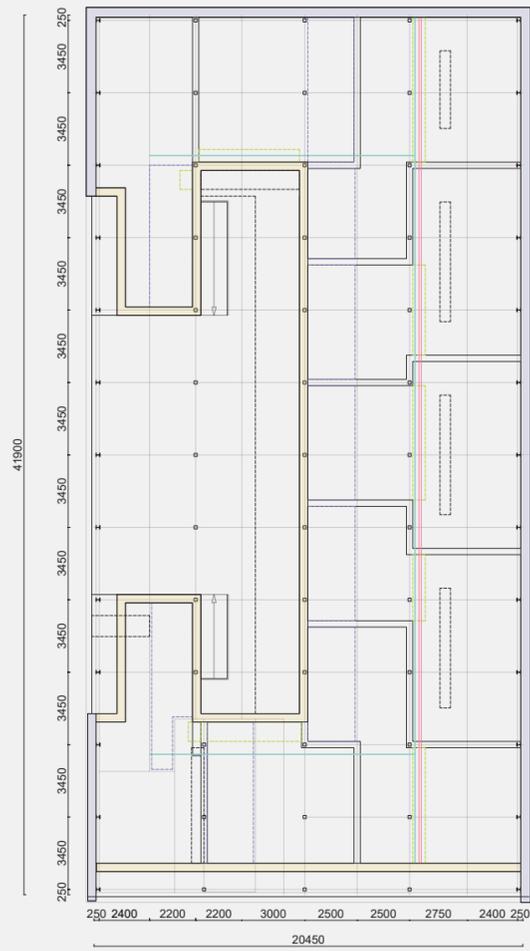
radical sustainable resourcing: sharing and building with leftover materials

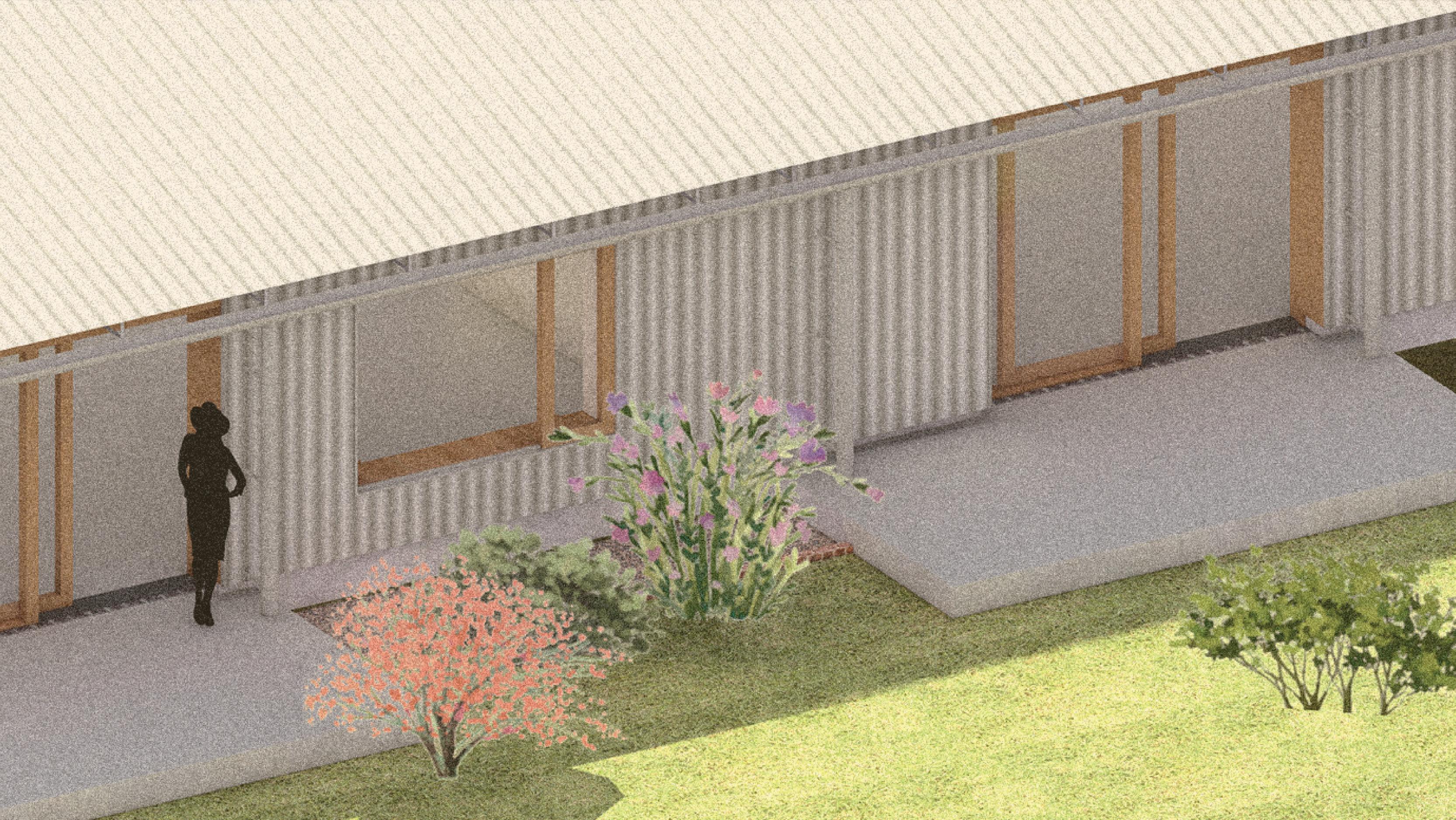
EXTERIOR FACADE

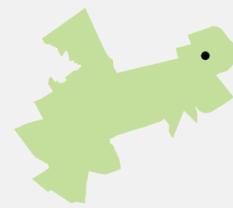
sustainability:
bio-based

leftover lot materials







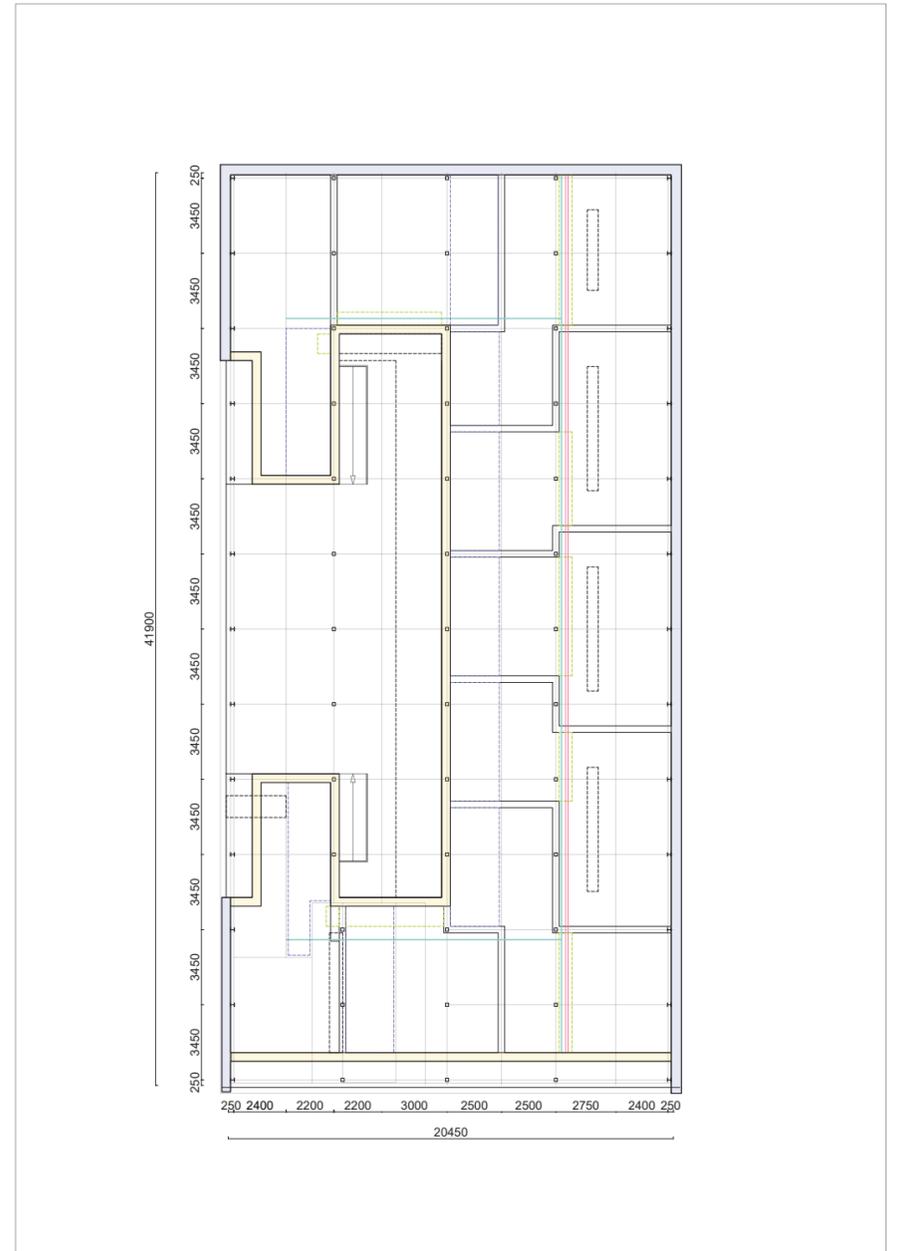
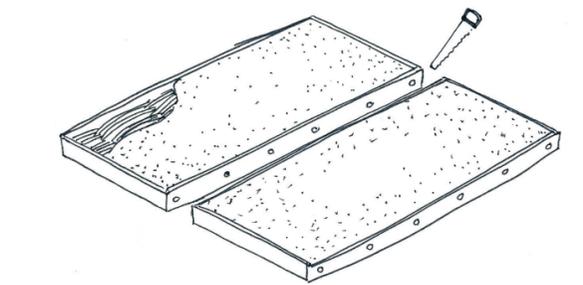
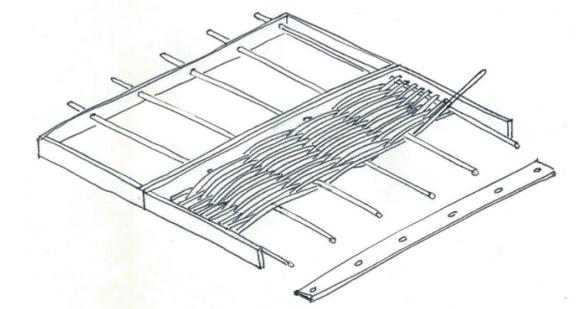
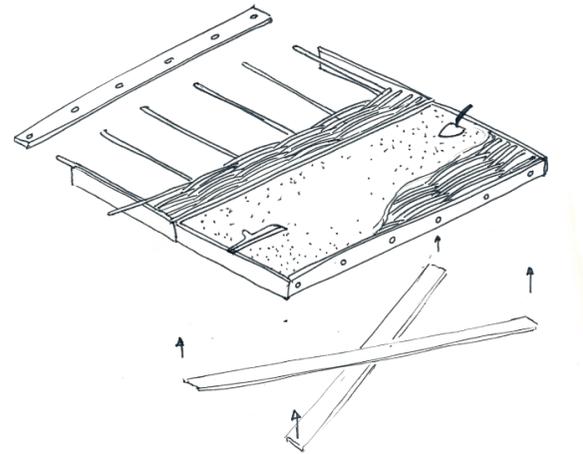
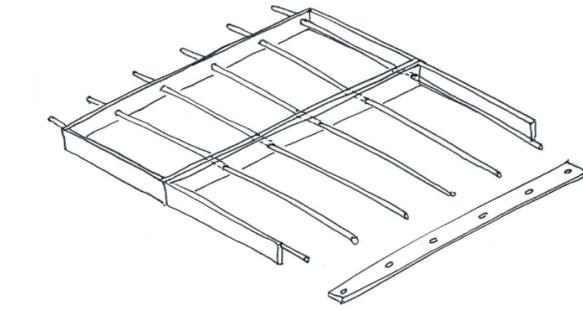


lesson learned from

bird conservationist John Kleijweg

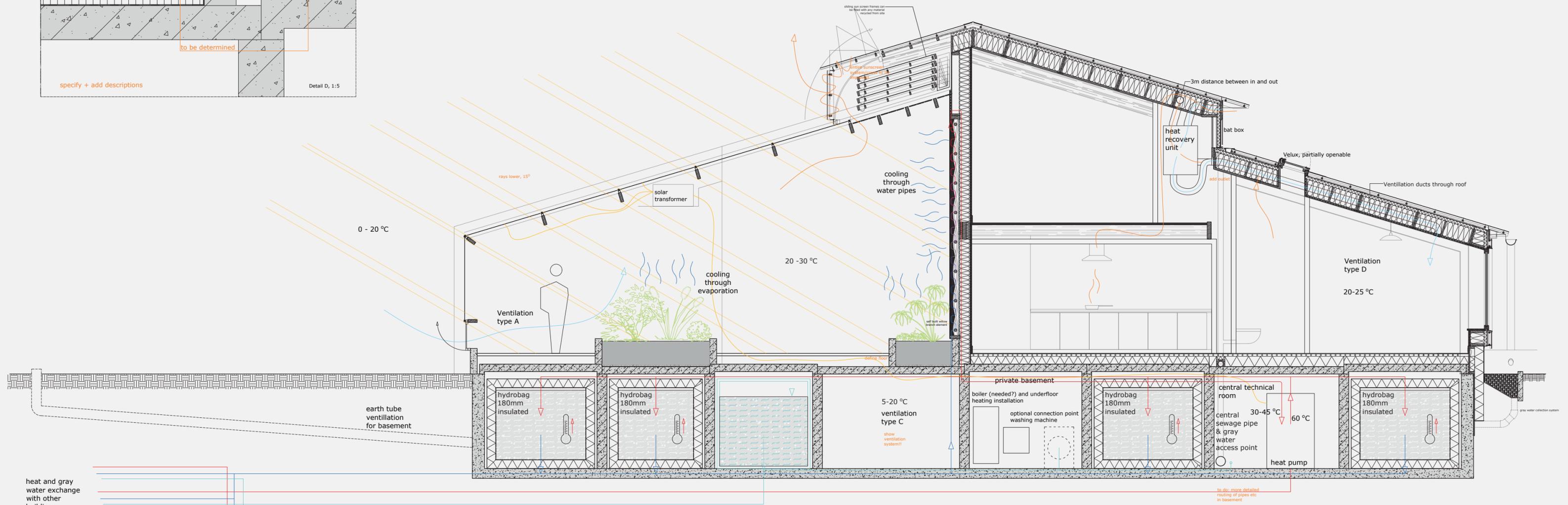
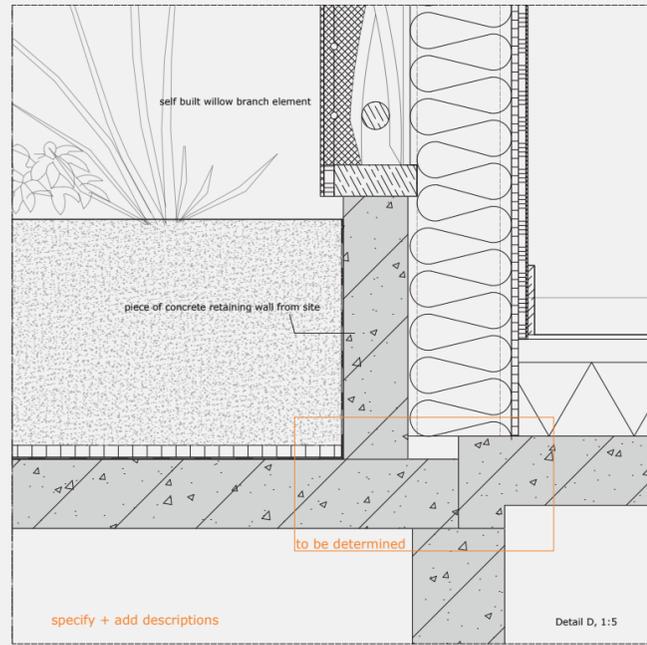


pollard willow as a functional tree in Dutch culutre landscape, nowadays a burden to maintain





climate scheme: sunny day



An architectural rendering of a modern courtyard. The courtyard is covered by a glass roof supported by a green metal frame. The walls are a warm, orange-brown color. On the left, there is a large window with a green frame. In the center, a paved walkway leads towards a building entrance. To the right, there is a seating area with a brown armchair, a small round table with a plant, and a white folding chair. The scene is bright and sunny, with shadows cast on the ground and walls. The text "how do we get these projects realized?" is overlaid in the center of the image.

how do we get these projects realized?

An architectural rendering of a modern courtyard. The courtyard is covered by a glass roof supported by a green metal frame. The walls are made of light-colored stone or concrete. There are several people walking in the courtyard. In the foreground, there is a planter box with various plants, including a large green plant and some blue flowers. To the right, there is a small table with a plant on it and a white chair. The overall atmosphere is bright and airy.

is this solution realistic?

Sustainability

Viability

Desirability

Feasibility

An architectural rendering of a modern building courtyard. The courtyard is covered by a glass roof supported by a green metal frame. The walls are a warm, terracotta color. There are large windows on the left and right. In the foreground, there is a planter box with various plants. In the background, several people are walking on a paved path. The overall atmosphere is bright and modern.

is this solution realistic?

Sustainability – Is it environmentally and socially sustainable?

Viability – Is it economically viable?

Desirability – Do people want it? Does it fit user needs?

Feasibility – Does it align with policy and deciding stakeholders?

feasibility limitations: zoning plans

The image shows a screenshot of a Dutch zoning plan lookup tool. The search bar at the top contains the text "Zoek op adres of perceel...". Below the search bar, a blue header displays "Perceel: MLD00-I-326". The main content area is divided into three tabs: "Perceel", "Adres", and "Bestemming", with "Bestemming" currently selected. The "Bestemming" tab shows a list of zoning plans, with the most relevant ones highlighted. The background is an aerial photograph of a rural area with green fields and a large white building. A blue rectangle highlights a specific parcel in the field. The text "Kralingerpolder" is visible in the top right corner of the aerial view. At the bottom of the aerial view, the road names "OOSTGAAG N468" and "MASLANDSE DAM" are visible.

Zoek op adres of perceel...

Perceel: MLD00-I-326

Perceel Adres Bestemming

Omgevingsplan
1 januari 2024

Meest relevant

Veeg- en parapluplan Plus
Bestemmingsplan, vastgesteld, geheel onherroepelijk in ...
27 september 2022

Buitengebied Gras, geconsolideerd Plus
Bestemmingsplan, geconsolideerd, geconsolideerd
19 mei 2022

Meest relevant

1e herziening Buitengebied Gras Plus
Bestemmingsplan, vastgesteld, geheel onherroepelijk in ...
22 september 2020

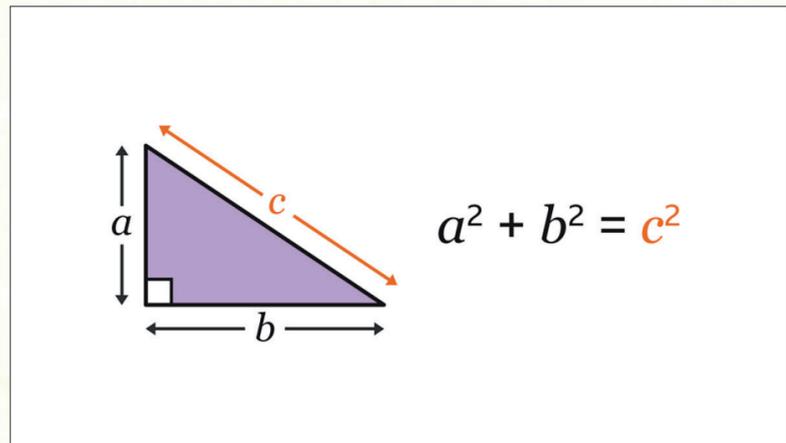
Meest relevant

1e herziening Buitengebied Gras Plus

Kralingerpolder

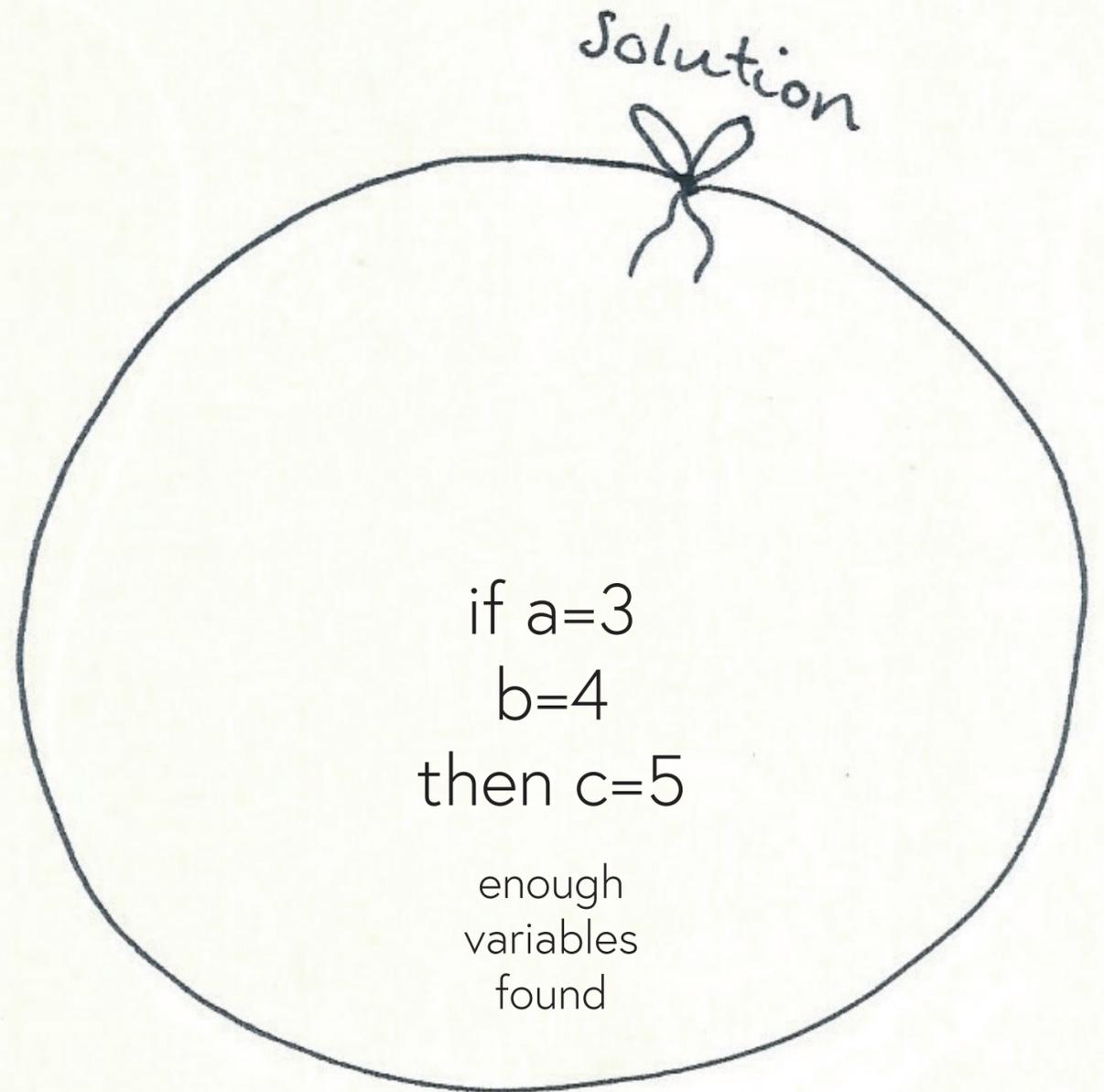
OOSTGAAG N468

MASLANDSE DAM

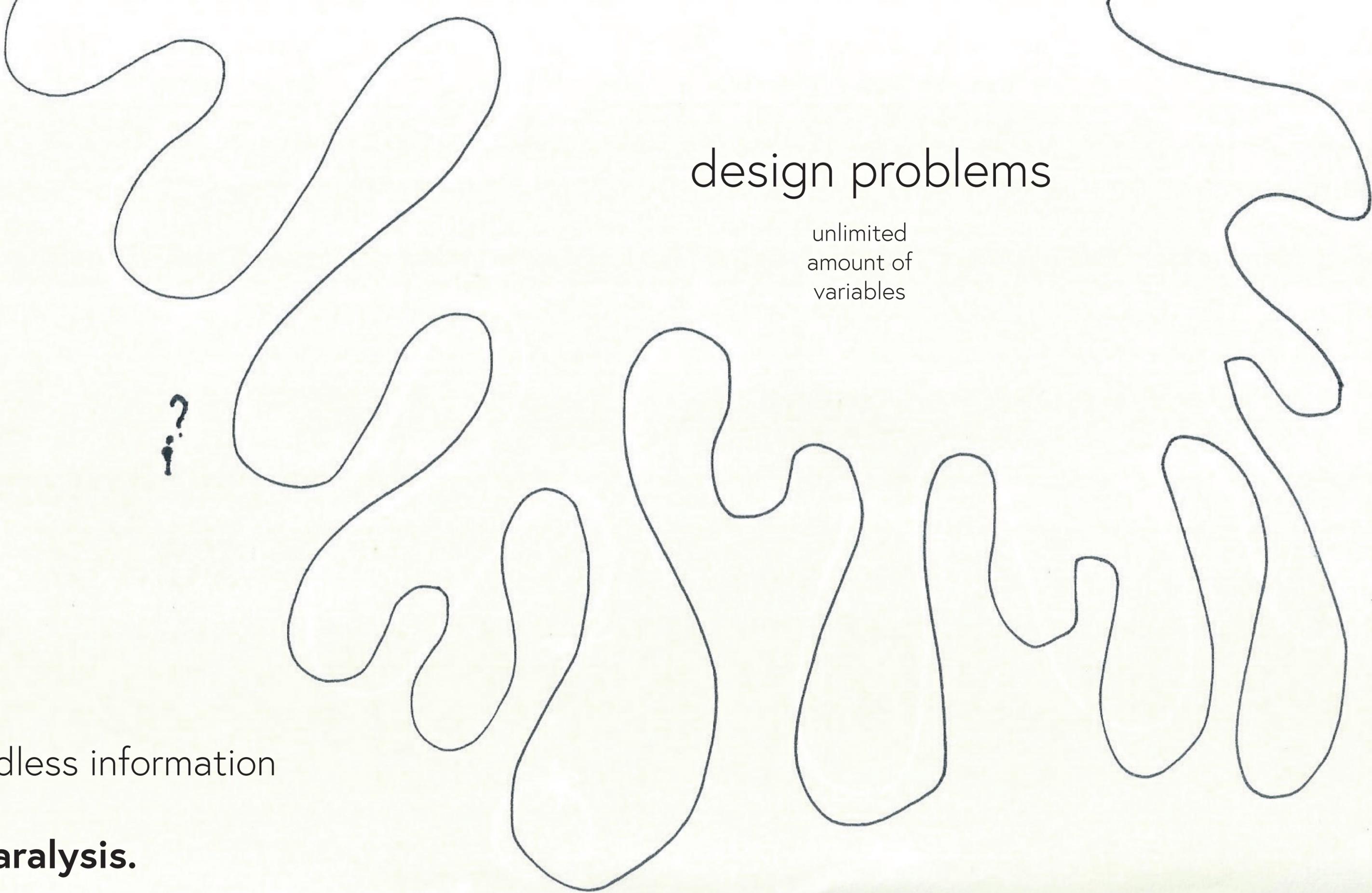


limited
amount of
variables

problem



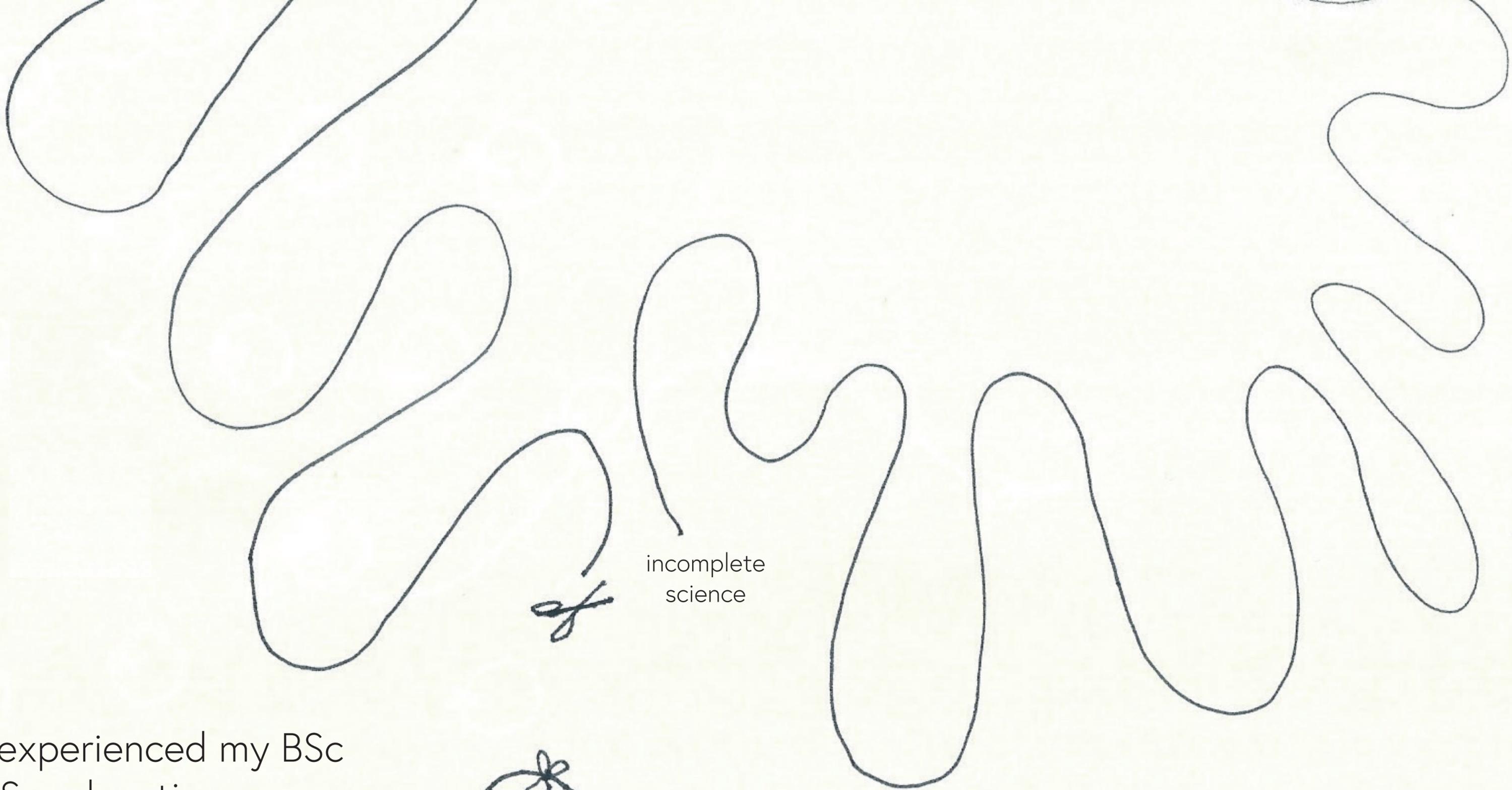
how I learned to science

A hand-drawn maze with a single path leading to a question mark. The maze is composed of several interconnected loops and dead ends. The path starts from the top left, goes down, then right, then down again, and finally right to reach a question mark. The rest of the maze consists of various shapes that do not connect to the path.

design problems

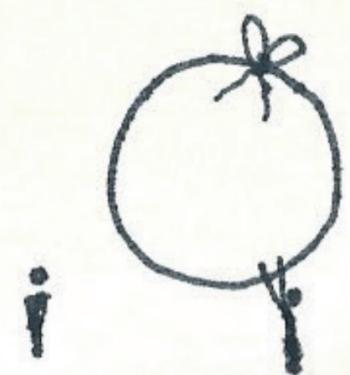
unlimited
amount of
variables

stuck in endless information
gathering,
analysis paralysis.



incomplete
science

how I experienced my BSc
and MSc education:
a designer that thinks like a
scientist.

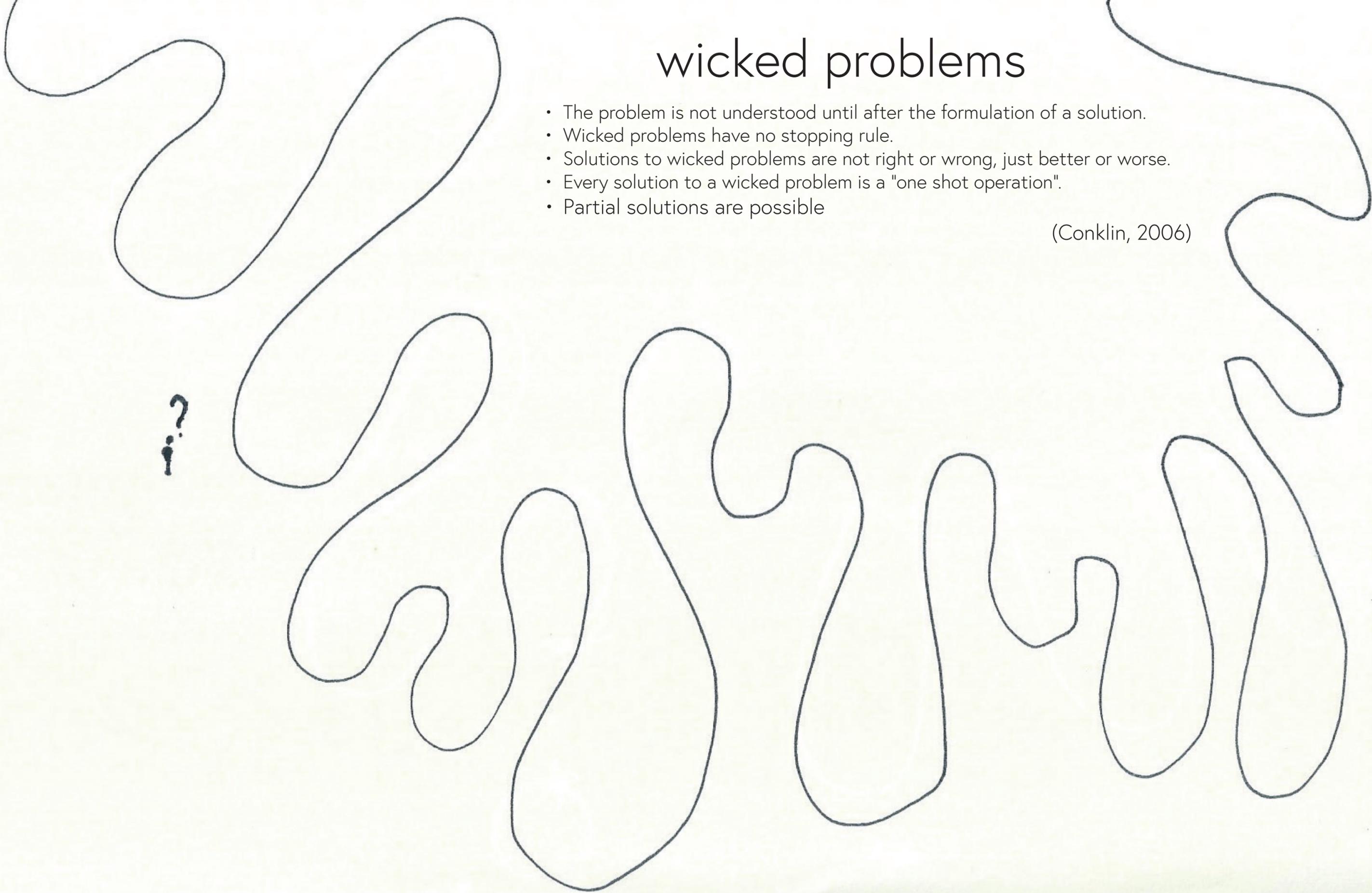


neglectful
scientist

wicked problems

- The problem is not understood until after the formulation of a solution.
- Wicked problems have no stopping rule.
- Solutions to wicked problems are not right or wrong, just better or worse.
- Every solution to a wicked problem is a "one shot operation".
- Partial solutions are possible

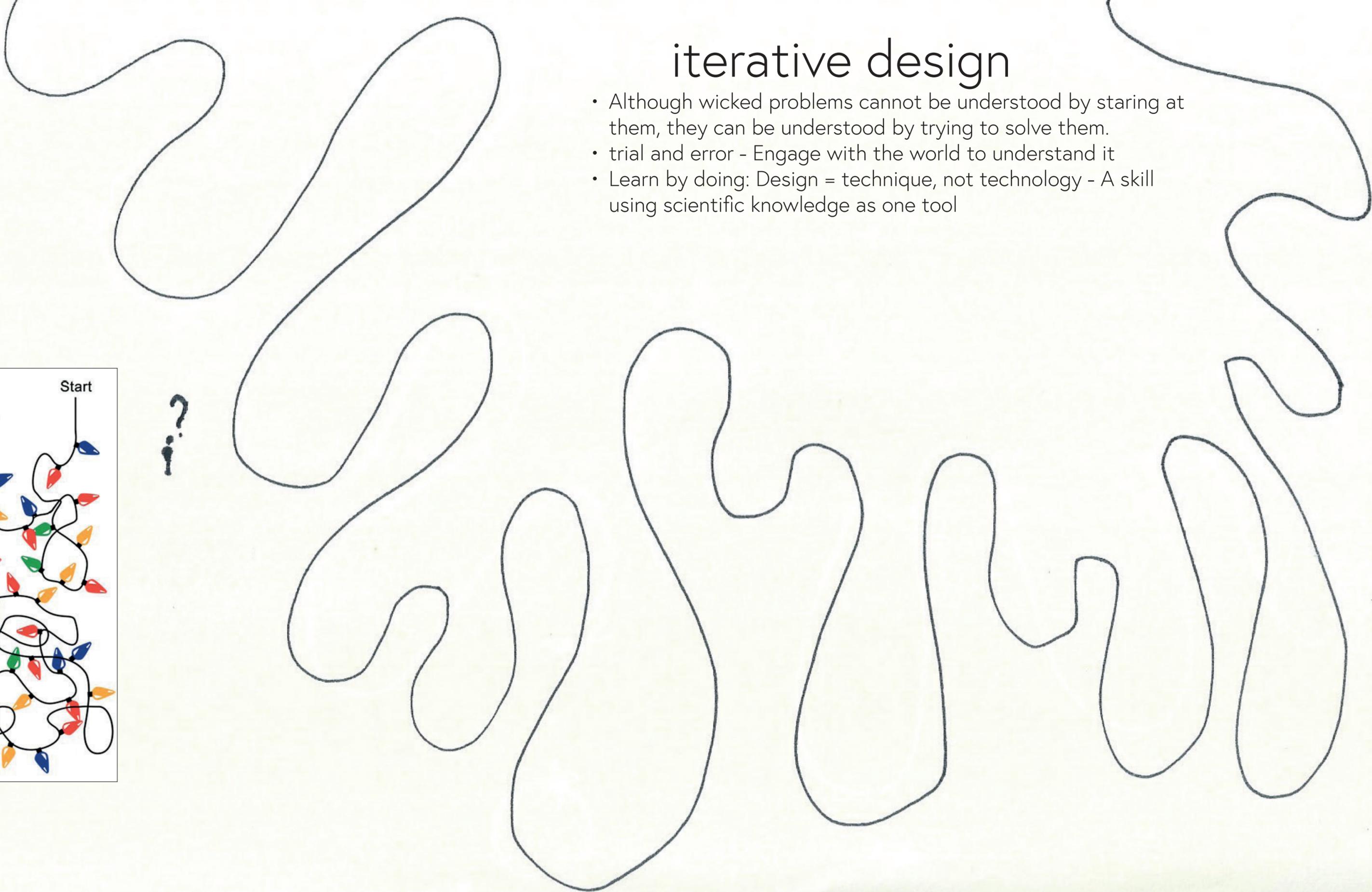
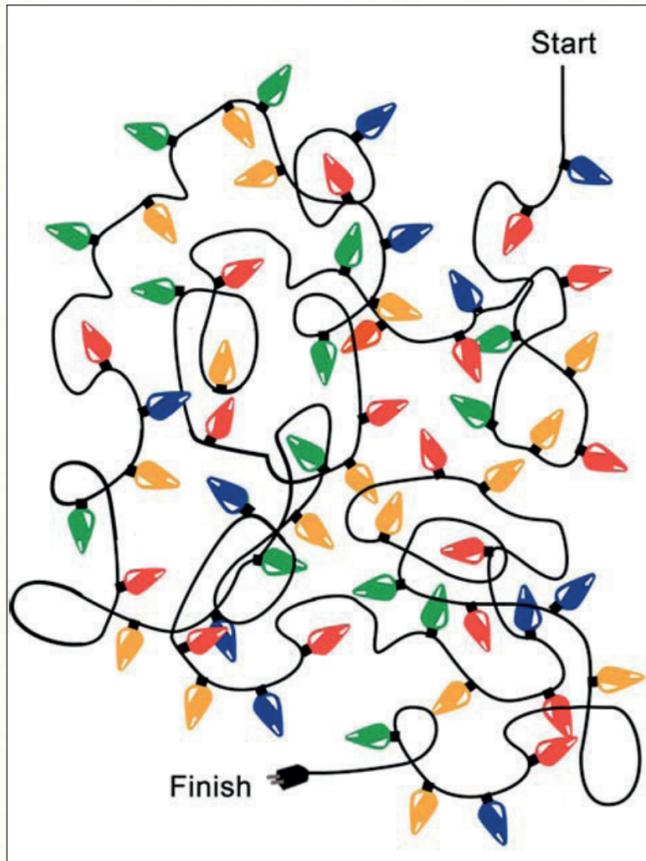
(Conklin, 2006)



?

iterative design

- Although wicked problems cannot be understood by staring at them, they can be understood by trying to solve them.
- trial and error - Engage with the world to understand it
- Learn by doing: Design = technique, not technology - A skill using scientific knowledge as one tool



iterative design

- Although wicked problems cannot be understood by staring at them, they can be understood by trying to solve them.
- trial and error - Engage with the world to understand it
- Learn by doing: Design = technique, not technology - A skill using scientific knowledge as one tool
- To assess your impact, you need to be creative too.
- Anyone can be an expert



this is iterative problem-solving too



John, who uses his entrepreneurial spirit to connect to farmers, together, they achieve agriculture with more room for birds



Fransjan, who spends his free time teaching people how to build new productive ecosystems



Pieter, who uses his skills to help groups of friends to realize their wish of growing old on farms together

the most creative people I know

this is iterative problem-solving too



John, who uses his entrepreneurial spirit to connect to farmers, together, they achieve agriculture with more room for birds



Fransjan, who spends his free time teaching people how to build new productive ecosystems



Pieter, who uses his skills to help groups of friends to realize their wish of growing old on farms together

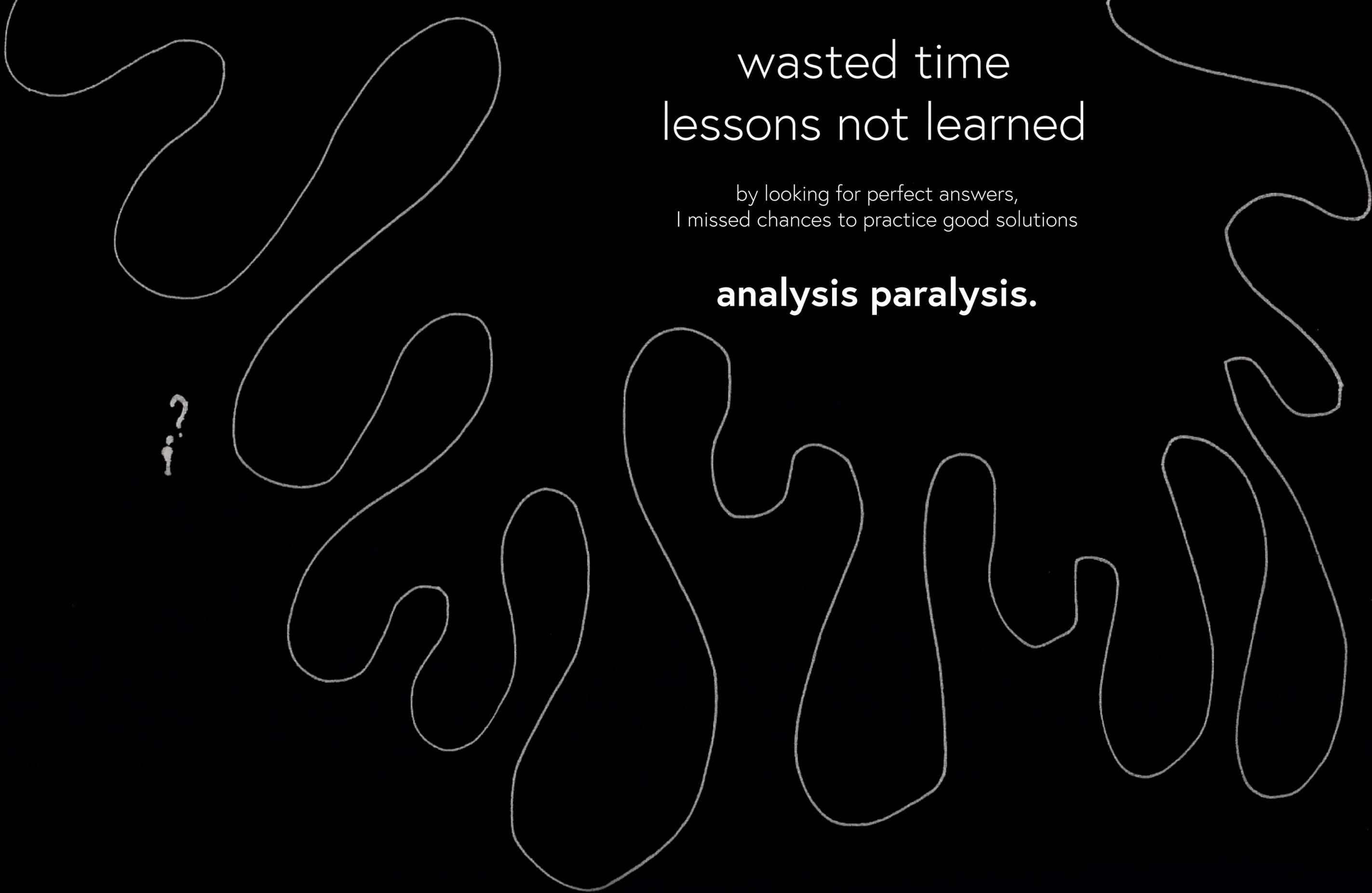
the most creative people I know, I want to be more like them

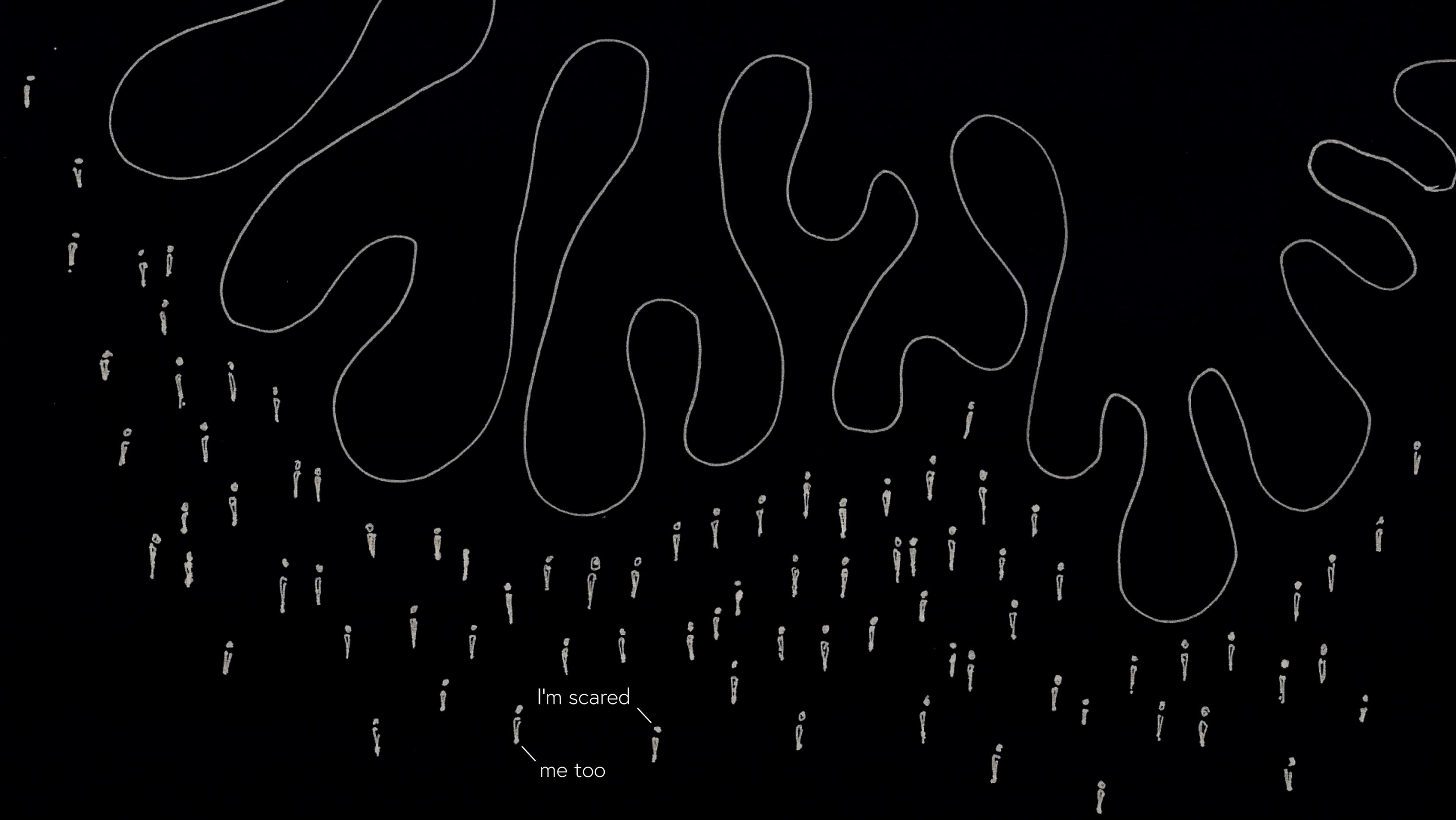
my message

wasted time
lessons not learned

by looking for perfect answers,
I missed chances to practice good solutions

analysis paralysis.





I'm scared

me too



lesson learned from

"Climate paralysis": the barriers between sustainable thinking and sustainable action

KLIMAATVERLAMMING: DE BARRIÈRES TUSSEN DENKEN EN DOEN

Duurzaam denken, duurzaam doen 2025

Amsterdam, juni 2025

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we must be able to do something, right?

i don't see it anymore

"They describe being stuck in a system with no solution in sight... ...All of this, combined with the scale of climate problems, paralyzes young people and makes them despondent."

- NOS, "Nederlandse jongere ziet klimaatverandering minder als urgent probleem", 12-06-2025, <https://nos.nl/artikel/2570824-nederlandse-jongere-ziet-klimaatverandering-minder-als-urgent-probleem>.

who is going to give us hope
to not give up yet?

to teach us that
we don't have to
know for sure, as
long as we keep
trying?
Because that
really can work.

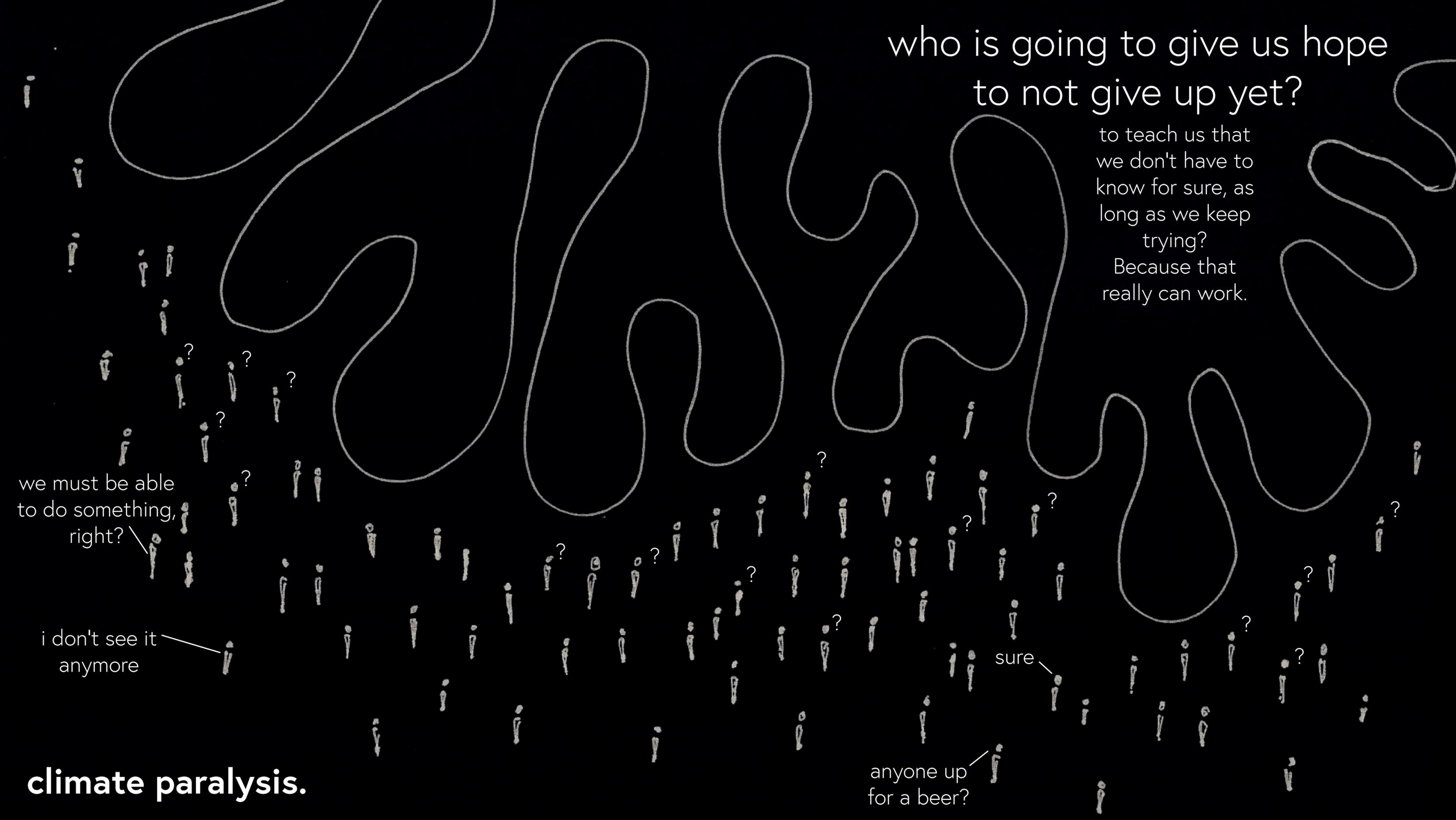
we must be able
to do something,
right?

i don't see it
anymore

sure

anyone up
for a beer?

climate paralysis.





response - ability

QS Engineering & Technology University Rankings:

1. Massachusetts Institute of Technology (MIT) - United States
2. University of Oxford - United Kingdom
3. Stanford University - United States
4. University of Cambridge - United Kingdom
5. ETH Zurich - Switzerland
6. University of California, Berkeley (UCB) - United States
7. Tsinghua University - China
8. Imperial College London - United Kingdom
9. Harvard University - United States
10. EPFL – École polytechnique fédérale de Lausanne - Switzerland
11. Nanyang Technological University (NTU) - Singapore
12. National University of Singapore (NUS) - Singapore
13. California Institute of Technology (Caltech) - United States
- 14. Delft University of Technology - Netherlands**
15. Georgia Institute of Technology United States

QS World University Rankings by Subject 2025: Architecture & Built Environment

1. UCL - London, United Kingdom
2. Massachusetts Institute of Technology (MIT) - United States
- 3. Delft University of Technology - Netherlands**

TU Delft Mission (2024):

"Impact for a Sustainable Society"

- TU Delft, "TU Delft's Vision, Mission and Values" accessed 16-06-2025, <https://www.tudelft.nl/en/about-tu-delft/strategy/tu-delfts-vision-mission-and-values>



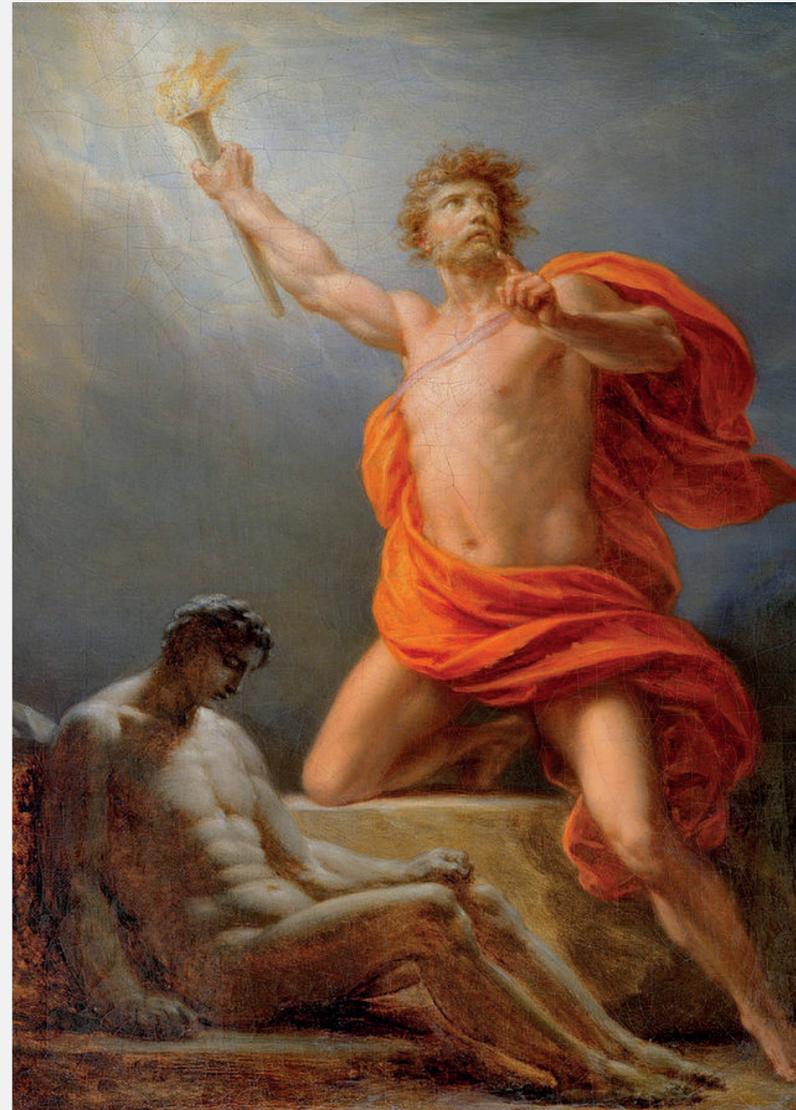
Delft University of Technology

"The flame of Prometheus has long been part of the TU Delft logo. **The flame symbolises pioneering technology**, the fire, which Prometheus stole from the Olympic gods and gave to the people out of love for mankind. This continues to be a source of inspiration for the TU Delft engineer."

- TU Delft, "Pictorial Mark" accessed 16-06-2025, <https://www.tudelft.nl/en/huisstijl/bouwstenen/logo/pictorial-mark>

"Technologies: Systematic application of scientific knowledge in engineering"
(technologieën: systematische toepassing van een wetenschap in de techniek)

- translated from Van Dale Online, accessed on 16-06-2025



Mythology

Prometheus ("he who thinks ahead") was the titan that stole fire from the gods to empower humans.

In mythology, Prometheus symbolizes:

- **creative problem-solving**
- **rebellion against authority**
- **sacrifice for progress**

- Josho Brouwers, *Goden, monsters en helden. De mythologie van de oude Grieken*, 2014, p. 58-61.

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Prometheusplein, Delft

From TU Delft, "TU Delft's Vision, Mission and Values" accessed 16-06-2025, <https://www.tudelft.nl/en/about-tu-delft/strategy/tu-delfts-vision-mission-and-values>

what makes a good architect?

what makes a good architect?



John, who uses his entrepreneurial spirit to connect to farmers, together, they achieve agriculture with more room for birds



Fransjan, who spends his free time teaching people how to build new productive ecosystems



Pieter, who uses his skills to help groups of friends to realize their wish of growing old on farms together



Prometheus, who sacrifices himself to give humankind what they need to thrive in the future

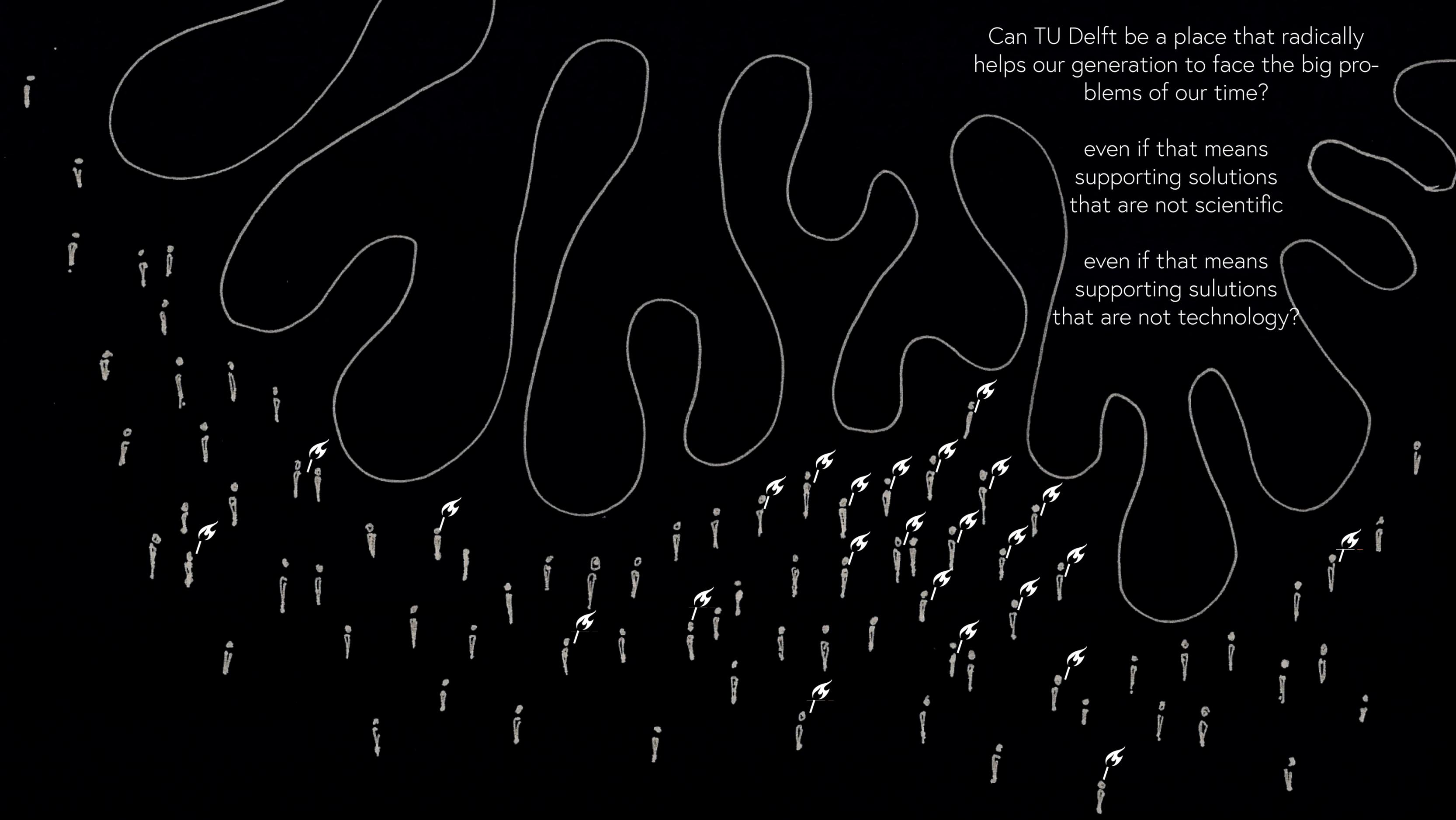
be like John, Fransjan, Pieter or Prometheus

- he who think ahead using:
- creative problem-solving
 - rebellion against authority
 - sacrifice for progress

Can TU Delft be a place that radically helps our generation to face the big problems of our time?

even if that means supporting solutions that are not scientific

even if that means supporting solutions that are not technology?



A photograph of a university campus. In the foreground, a large group of students is sitting on a green lawn, some in groups, some alone. A tall, dark, rust-colored metal sculpture stands in the middle ground. The background features modern university buildings, trees with white blossoms, and a clear blue sky. Overlaid on the image are several white, stylized flame icons scattered across the lawn and around the sculpture.

8.600 ambitious,
talented students
every year,
let's equip them to take
action solving the big
problems of their time!

Prometheus ("**he who thinks ahead**") was the titan that stole fire from the gods to empower humans. In mythology, Prometheus symbolizes:

- **creative problem-solving**
- **rebellion against authority**
- **sacrifice for progress**

An architectural rendering of a modern courtyard. The courtyard is covered by a glass roof supported by a green metal frame. The walls are a warm, terracotta color. On the left, there is a large window with a green frame. In the center, a person is sitting on a bench. To the right, there is a small table with a plant on it. The overall atmosphere is bright and airy.

is this solution realistic?

Sustainability – Is it environmentally and socially sustainable?

Viability – Is it economically viable?

Desirability – Do people want it? Does it fit user needs?

Feasibility – Does it align with policy and deciding stakeholders?

graduation requirements

P4 Requirements Ecologies of Inclusion

Advanced Housing Studio MSc 3-4, Autumn semester 2024
Studio tutors: Olv Klijn, Brook Haileselassie, Ruurd Kuijlenburg

Studio products:

Booklet 1, containing the urban analysis and the sites for intervention

Group products:

- finished urban massing model of your group, 1/200
- finished urban masterplan drawing 1/200
- 2 finished urban sections 1/200

Individual products

- **research report** (A5, presented in booklet style, as research reports from previous years), as agreed within the framework of your individual research
- **design brief** of the ecology of inclusion that you propose in your project, containing:
 - **A written project statement** explaining a) the role of your project in relation to the urban masterplan b) the agenda of your project according to the studio themes (sustainability thinking, building resources, gender equity, social inclusion and affordability) and c) how your program will impact on the big scale (The ZUS- Plan) and the local scale of the direct surroundings, using the insights of the urban analysis as a starting point for your argument (350 words)
 - a (written) declaration on your chosen target group, tenure type and programming of collective spaces, containing
 - a) a description of the profile of the dwellers you design for, household types and/or other features you think of as necessary
 - b) the type of housing tenure
 - c) the programming of collective spaces
 - **definitive drawing(s) articulating the programmatic mix** you propose
- **drawings explaining your concept + diagrams explaining the urban scale** containing
 - a) the urban masterplan drawing 1:200 indicating the position of your project (repetition of what's done in the groupwork)
 - b) drawings or diagrams explaining the role of your project within the aims and goals of the urban masterplan
 - c) drawings or diagrams indicating the type of urbanity you want to achieve, focusing on the shared spaces between productive spaces and public spaces, as well as between productive spaces and dwelling space(s)

- **physical conceptual model 1/100 (could be a partial model depending on what aspects you want to explain)**
- **drawings showing definitive building design at a detail level of 1:100**, indicating circulation principles; unit division and typologies; orientation and function of collective spaces in plans and at least 2 section and 2 elevation
- **perspective(s) or other impression(s)** of the project indicating what atmosphere and street life your imagen. Think about how productive spaces bordering public space may re-define the role of the street?

Individual Presentation

- 40 slides max, presented in horizontal format **with slide numbers**
- key elements of the research report and how it feeds into the design
- key elements of the project concept and design brief
- urban design (and its grounding within the urban analysis)
- architectural design (and its grounding in the individual research); within the architectural design, you will identify 3-4 key constellation that you will work on between P3–P4

BT-products (bear in mind that some of these products can be integrated with the architectural products depending on your own decision)

- a poster that visually conveys your main sustainability and circularity position, strategies and targets, and how this translates into:
 - urban context
 - structure
 - climate concept
 - façade concept
- structural concept showing:
 - spans and span directions
 - material(-s) and its dimensions
 - stability
 - building methods
 - Connection principles
- climate concept
 - diagrams showing principles in winter and summer (passive first!)
 - Energy balances, sources and ways of emission
 - Temperature control
 - Air quality
 - Health, nature,
- Façade concept
 - functions it integrates
 - connections and relations with climate and structure
 - materials
 - building methods
- fragment 1:20
 - façade elevation
 - crosssection
 - horizontal section (plan view)
 - optional longitudinal section with indoor elevation

• Details 1:5

- 5 basic details or 3 to 4 compound and complex details, at least containing
- Groundfloor – façade detail
- Window detail 2x vertical (top & bottom) and 1x horizontal
- Façade – roof detail

design education for the future

