COMPLEX PROJECTS

LABORATORY LIFE

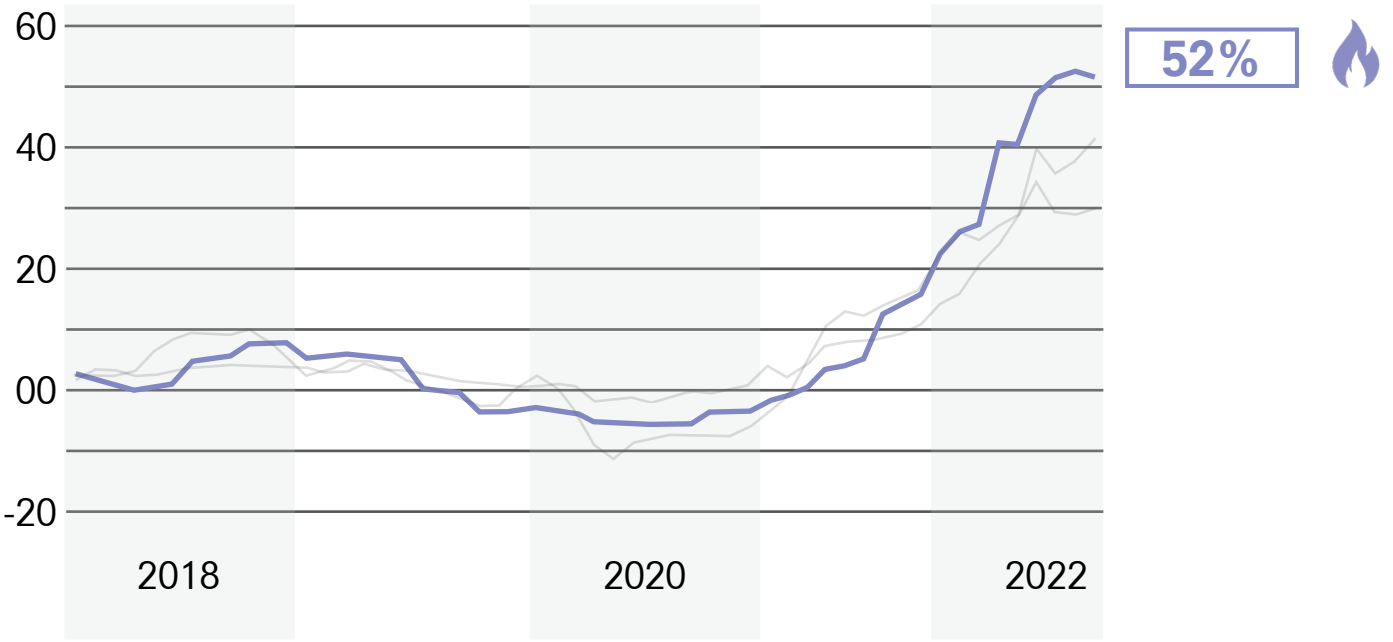
A Medical Laboratory Building

Sander Geluk 05/07/2024

INDEX

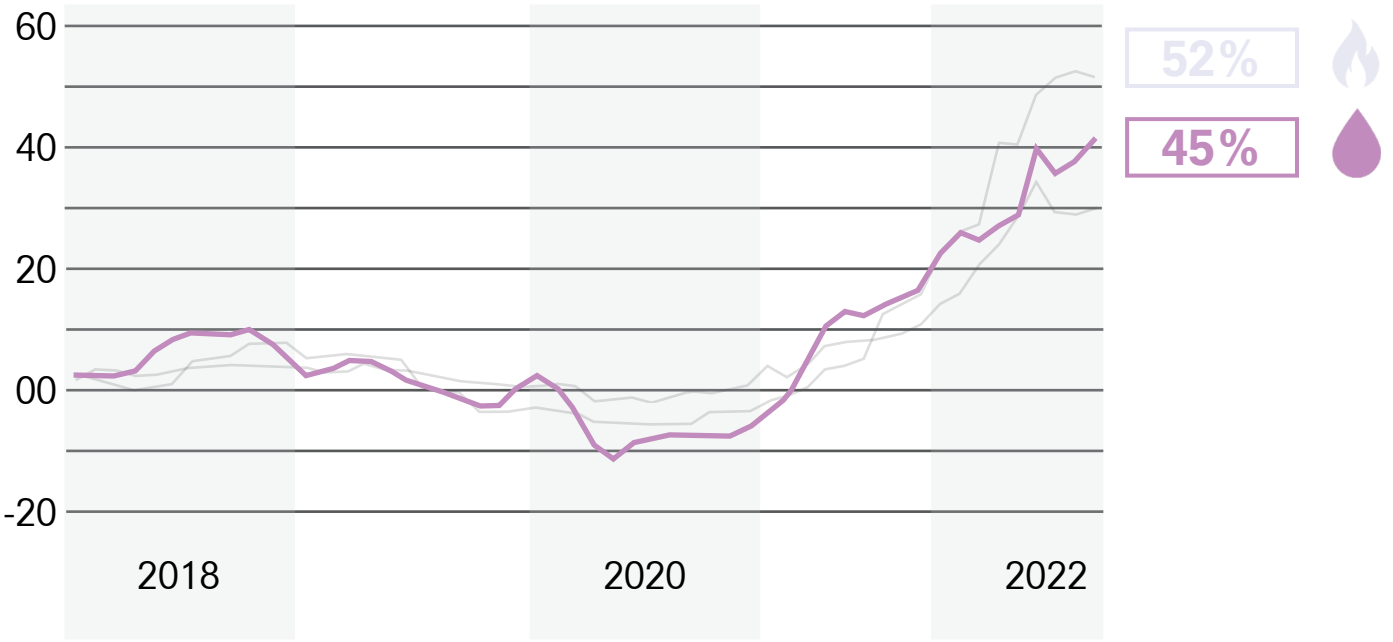
ENERGY PRICES IN THE EU

Monthly rate of inflation in terms of electricity, gas, liquid fuels and energy as a whole in the EU (in %)



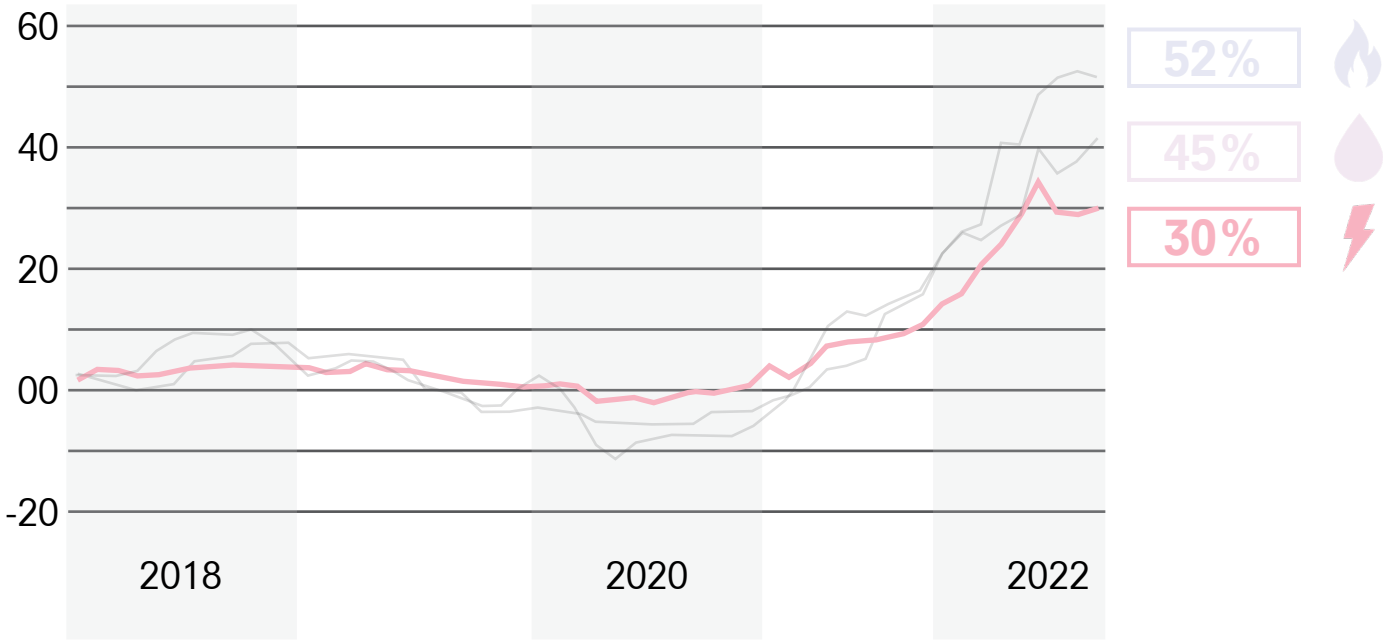
ENERGY PRICES IN THE EU

Monthly rate of inflation in terms of electricity, gas, liquid fuels and energy as a whole in the EU (in %)



ENERGY PRICES IN THE EU

Monthly rate of inflation in terms of electricity, gas, liquid fuels and energy as a whole in the EU (in %)



GERMANY ENERGY CRISIS

GERMANY ENERGY CRISIS

In Germany, an average family can now expect to pay an

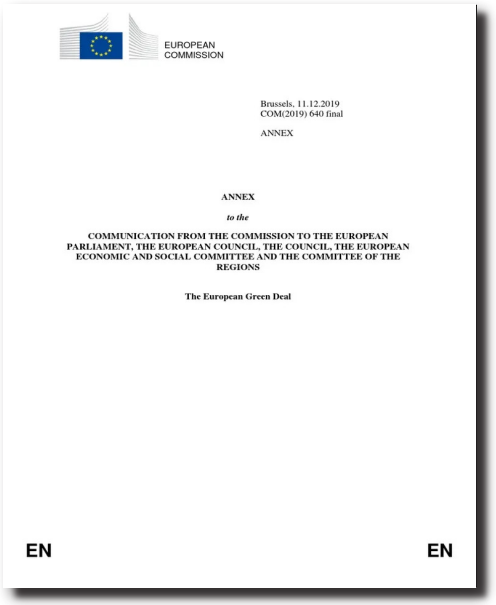
additional € 480,- year for gas

after an additional tax on gas consumption was established
to help cover the cost of replacing Russian supplies.

FUTURE AMBITION

2019

Goal: 2050



EUROPEAN COMMISSION

Brussels, 11.12.2019
COM(2019) 640 final

ANNEX

ANNEX

to the

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

The European Green Deal

EN **EN**

The European Green Deal

FUTURE AMBITION

2019

Goal: 2050

2021

Goal: 2045

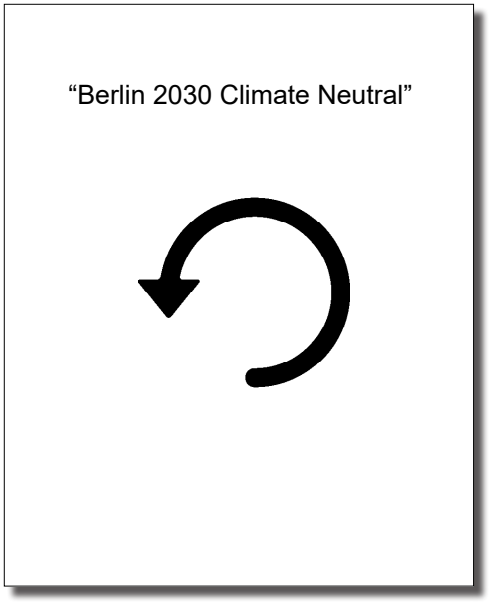
The European Green Deal

German Climate Change Act

FUTURE AMBITION

2019 | 2021 | **2023**

Goal: 2050 | Goal: 2045 | **Goal: 2030**



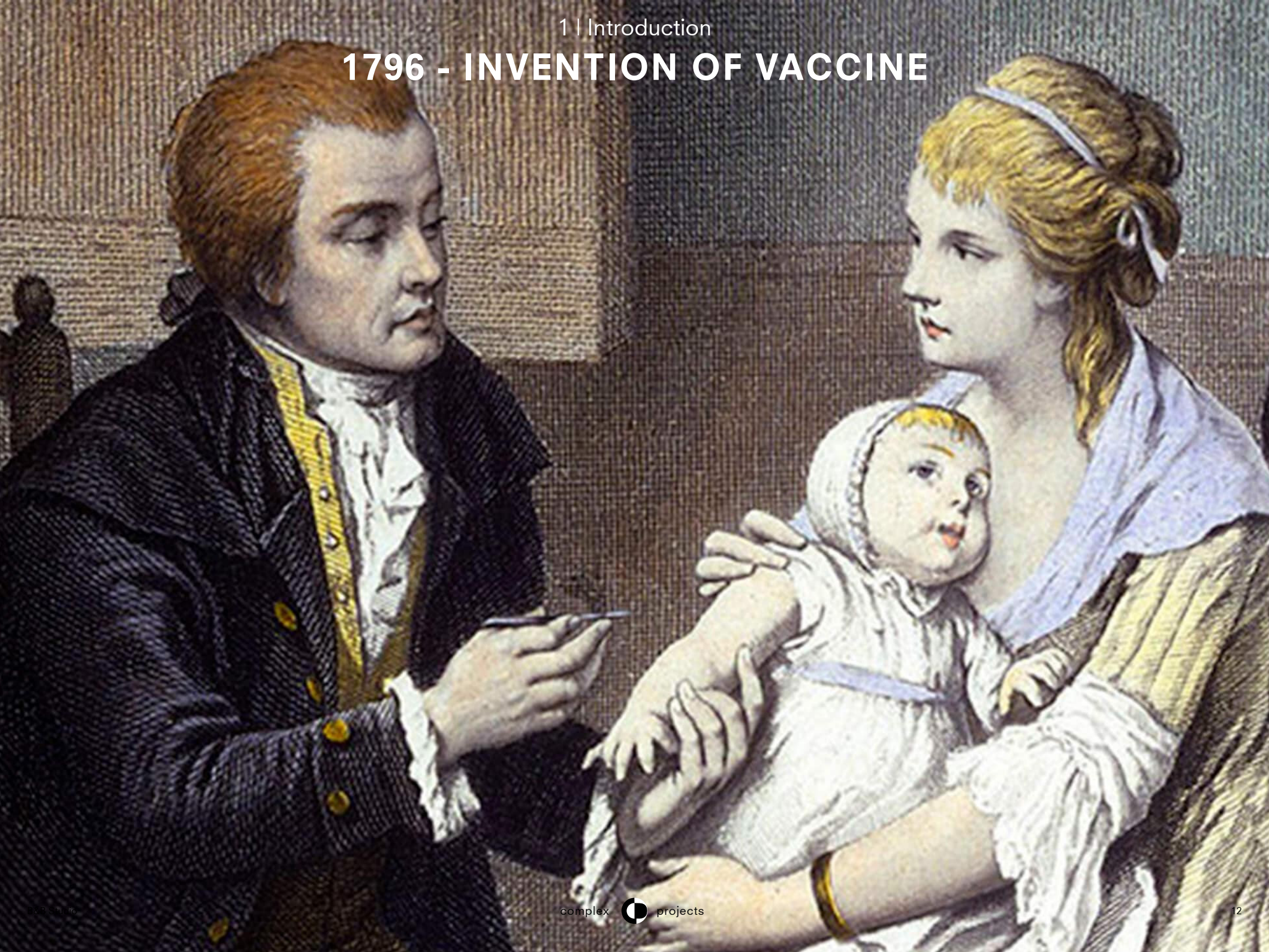
The European Green Deal

German Climate Change Act

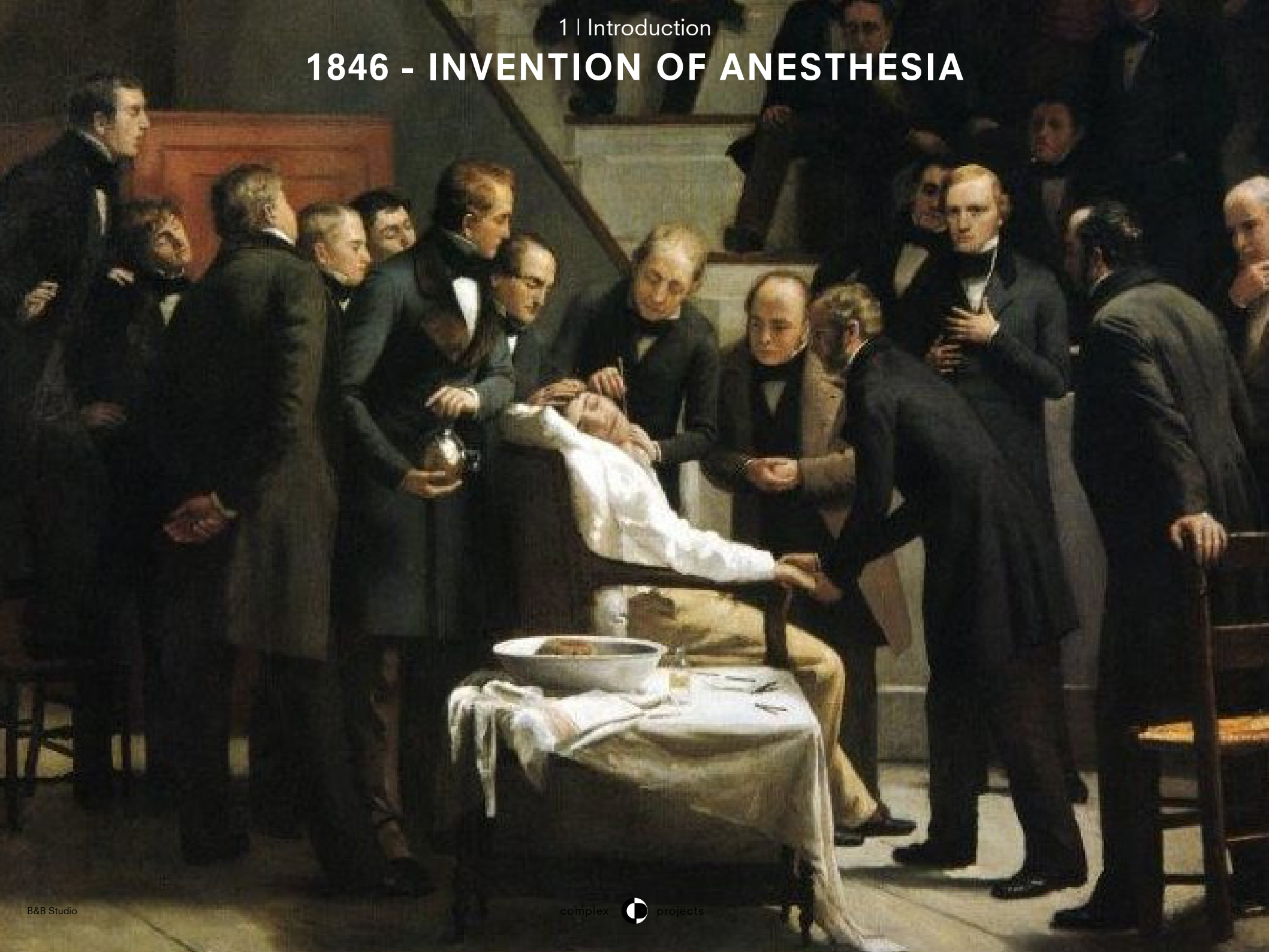
New More Ambitious Policy

GERMAN HEALTHCARE

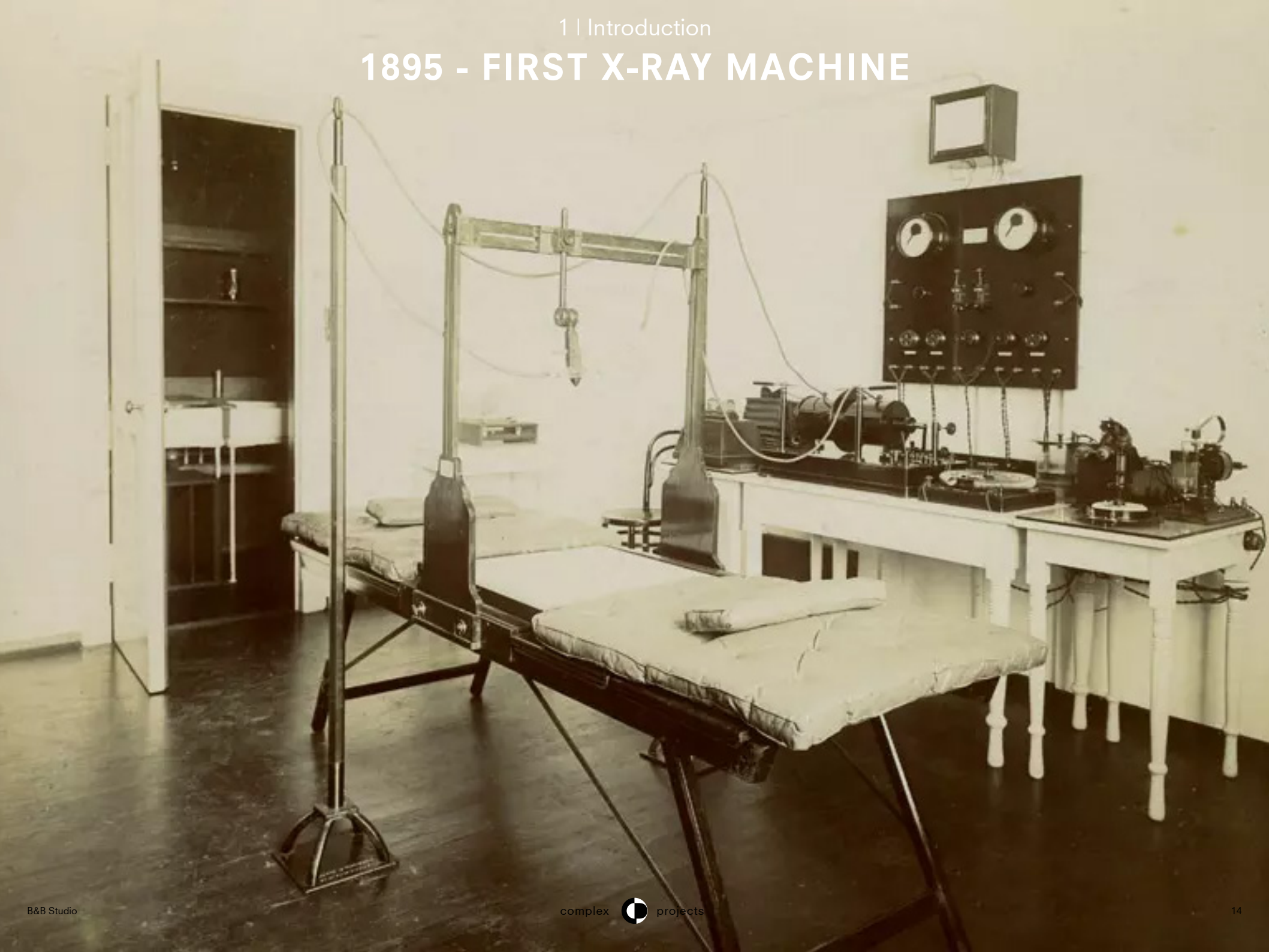
1796 - INVENTION OF VACCINE



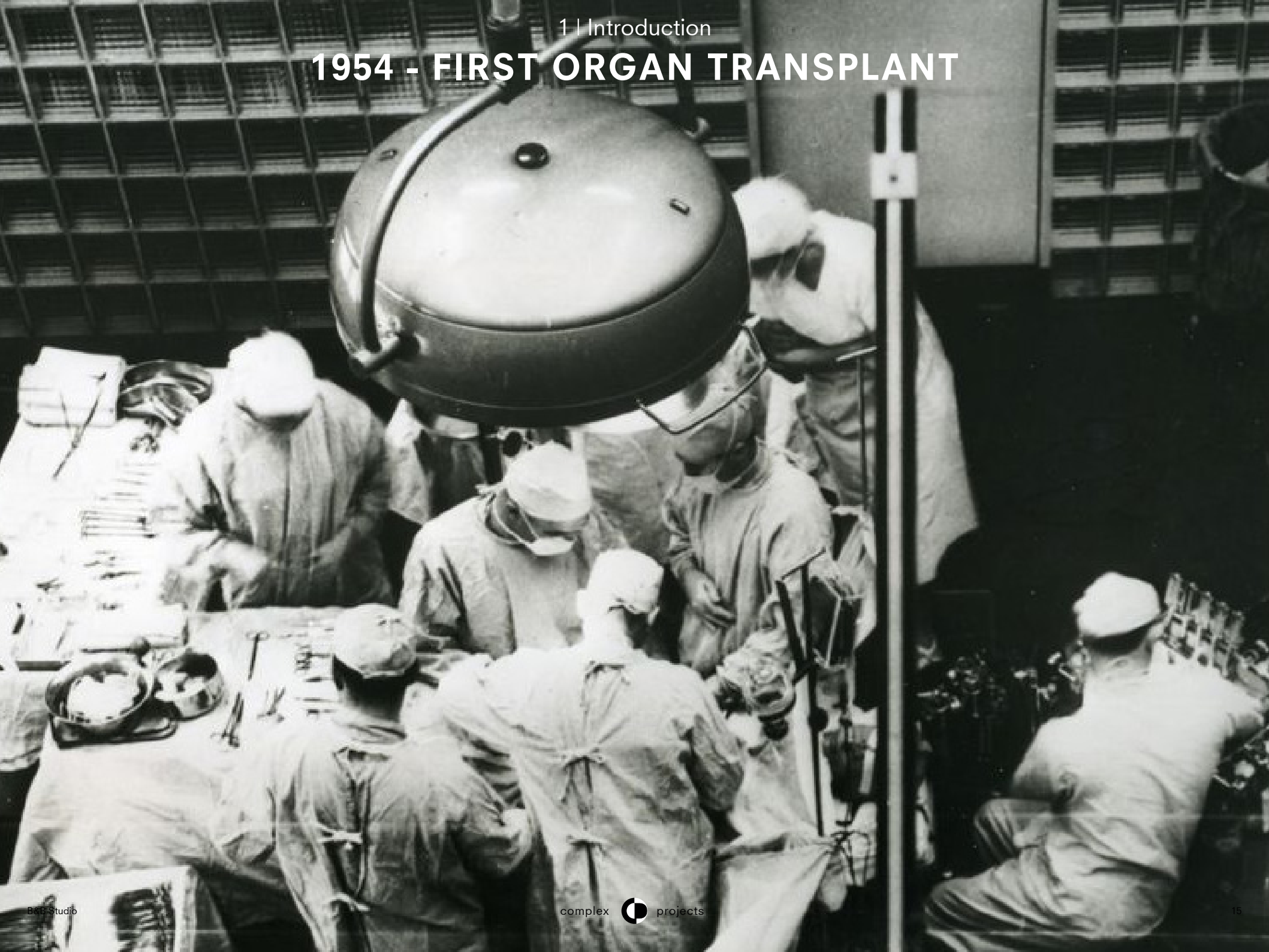
1846 - INVENTION OF ANESTHESIA



1895 - FIRST X-RAY MACHINE



1954 - FIRST ORGAN TRANSPLANT



2019 - COVID-19

Ready to take the vaccine shot?

YES or NAH!

The narrative around the vaccine's safety is causing panic among many people. However, some have rushed to take the vaccine even though clinical trials are still underway. Experts too say "wait till due diligence is done"

PHOTO CREDIT: FREEPIK

TWINKLE GURNANI

As the whole world races to discover the COVID vaccine, many are rushing or getting tempted to get vaccinated against the virus and thus curb the incapacitating pandemic. Rumour is the richie rich folks and those who are closely associated with the pharma bosses have requested them and taken the vaccine shots already. Nobody knows about the side-effects yet. Doctors themselves warn us, say, "Do not rush." To clear the air around the risks associated with the vaccine, we spoke to four expert doctors who shared their insights and commented on the risk versus benefits associated with getting vaccinated.

A VACCINE IS SAFE ONLY AFTER IT PASSES FOUR PHASES OF TRIAL

— **Dr K. Hari Prasad,**
President, Apollo Hospital, Hyderabad

The vaccine will not and should not be available unless the due diligence is done. Unless a vaccine is safe and passes all the four phases of trials, it won't be authorised by the regulatory authority. As regards the side effects and allergic reactions to the vaccine, it's important to remember that every vaccine poses a threat of side effects. Some people even develop an allergy with the consumption or application of peanut-based products. That's not to say that the vaccine could be fatal or should be avoided. While a small proportion of people will always develop allergic reactions to any external substance, that shouldn't stop the rest of us from taking the vaccine.

However, one big challenge associated with the vaccine is that as of now it cannot be ascertained how long the immunity provided by the vaccine will last.

7 REASONS WHY THE VACCINE MAY NOT BE FOR YOU

— **Dr P. Shravan Kumar,**
Superintendent, Gandhi Hospital, Hyderabad

As yet, no vaccine has been given authorisation in India. Therefore, whoever takes the vaccine now is a part of the trials. Any interested citizen can enroll for the vaccine trails and get the shot of the vaccine for free. Once the vaccine is authorised and marketed, a paid version of the vaccine will be available in the market.

The vaccine is not an ultimate antidote for the virus. Some of reasons include the following:

1) Vaccines work well only on people with a good immunity.

2) People with less immunity, including those with comorbid conditions such as diabetes and kidney diseases might not develop enough antibodies to resist the virus even after taking the vaccine.

3) People who've already contracted the virus and have an amount of antibodies present in their bloodstream will most likely develop a reaction to the vaccine. Therefore, such people should not take a vaccine until after three months from contracting the virus.

4) A person will become immune to the virus only after 42 days of taking the second dose of the vaccine. However, the chances of being immune are also only about 90% to 94% depending on the efficacy of the vaccine itself.

5) The immunity provided by the vaccine after 42 days of the second dose is short-lived, sometimes lasting up to just as little as three months. After that, another dose of the vaccine should be taken, which will again be efficient only after 42 days.

6) Therefore, one needs to keep taking a vaccine every three to six months, depending on how long the immunity provided by the vaccine lasts. After each final shot of the vaccine, there will be a window of up to 42 days during which a person can still contract the virus and if a person does contract the virus during this window he/she won't even be eligible to take the next shot of the vaccine as they might develop side effects from it.

7) Once a person takes the vaccine, the virus mutates regressively. Therefore, the same vaccine shot might not work even in generating antibodies against the virus after a second dose.

With all this in mind, it can be said that vaccines will help in controlling the wide-spread of the virus and will provide it's users with a degree of mental satisfaction. But it is in no way an ultimate solution. People still need to measure all the precautions."

TURN TO PAGE 2

RESTRICTIVE LAWS

Federal Law Gazette, Part I, No. 69, issued in Bonn, 19th December 1990, page 2746

Act
for Protection of Embryos
(The Embryo Protection Act)

Gesetz
zum Schutz von Embryonen
(Embryonenschutzgesetz – ESchG)

Of 13th December 1990

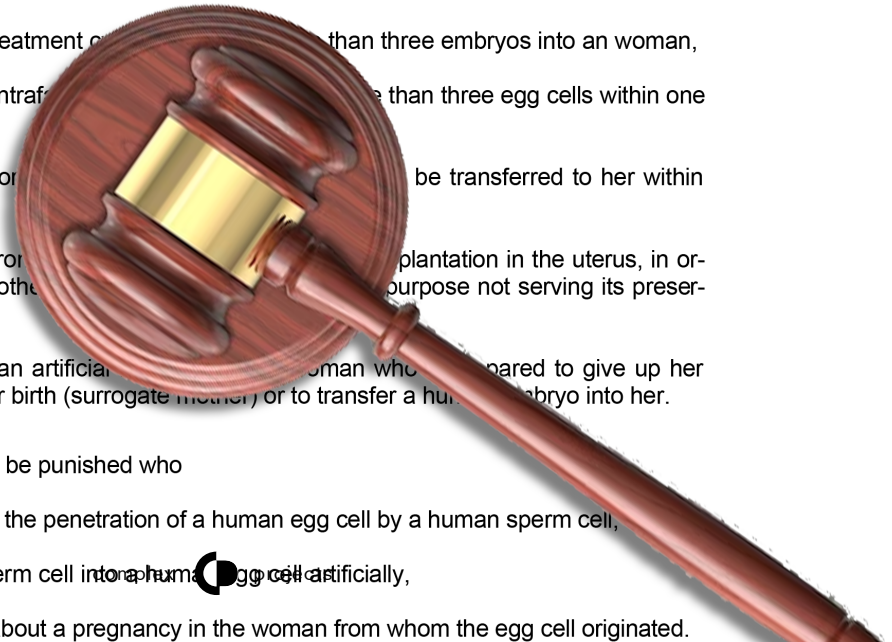
The following Act has been adopted by the Bundestag:

Section 1

Improper use of reproduction technology

(1) Anyone will be punished with up to three years imprisonment or a fine, who

1. transfers into a woman an unfertilised egg cell produced by another woman,
2. attempts to fertilise artificially an egg cell for any purpose other than bringing about a pregnancy of the woman from whom the egg cell originated,
3. attempts, within one treatment c… than three embryos into an woman,
4. attempts, by gamete intraf… than three egg cells within one treatment cycle,
5. attempts to fertilise mor… be transferred to her within one treatment cycle,
6. removes an embryo fro… plantation in the uterus, in order to transfer it to anothe… purpose not serving its preservation, or
7. attempts to carry out an artificia… oman who… pared to give up her child permanently after birth (surrogate mother) or to transfer a hu… abryo into her.



(2) Likewise anyone will be punished who

1. brings about artificially the penetration of a human egg cell by a human sperm cell,
2. transfers a human sperm cell into a human egg cell artificially,

without intending to bring about a pregnancy in the woman from whom the egg cell originated.

In 2023, there were

175 people suffering from stillbirths

averaging >150 the past 20 years

In 2023,

400 people had an abortion with medical indication

averaging >400 the past 20 years

In 2021, over

5.000 people sought ART with 30% being unsuccessful

in conceiving their own child.

Resulting each year in

>10.000 people who struggle

in starting a family in Berlin

RESEARCH QUESTION

How does the architectural design of a medical laboratory building contribute to a safe and social integration of artificial birth processes?

INDEX

WHAT? WHO? WHERE?

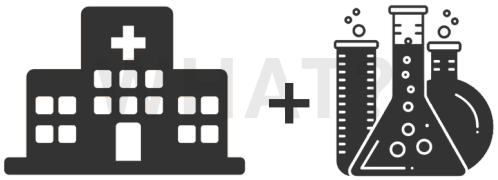
WHAT?

WHO?

WHERE?

PROJECT AMBITIONS

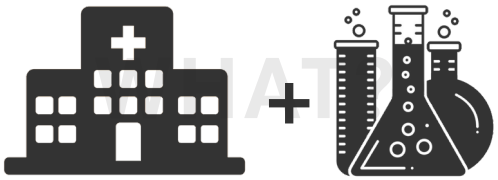
New typology



WHAT? WHO? WHERE?

PROJECT AMBITIONS

New typology

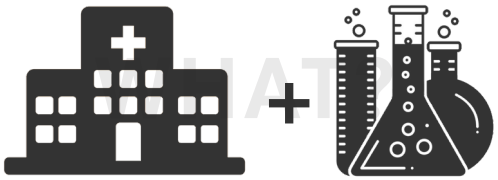


Collaborative research

WHAT? WHO? WHERE?

PROJECT AMBITIONS

New typology



Collaborative research

Calm environment

WHAT? WHO? WHERE?

WHAT? WHO? WHERE?

CLIENT

CLIENT REQUIREMENTS

Government

BERLIN

Laboratory research

ECRC Experimental & Clinical Research Center

Medical expertise

CHARITÉ UNIVERSITÄTSMEDIZIN BERLIN

POTENTIAL CLIENTS

Governmental

BERLIN

Bundesministerium für Gesundheit

Federal Ministry of Health

Federal Institute for Drugs and Medical Devices

BZgA Federal Centre for Health Education

GOVERNMENTAL CLIENTS

Governmental

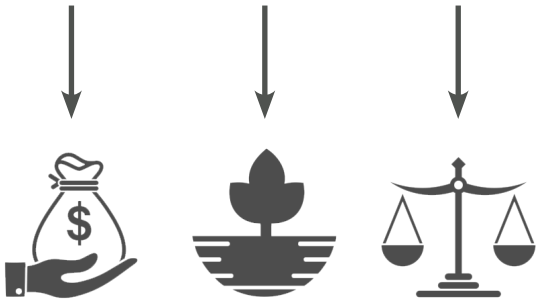
BERLIN

Bundesministerium
für Gesundheit

Federal Ministry
of Health

Federal Institute
for Drugs and Medical
Devices

BZgA Federal Centre
for
Health
Education



PRIVATE CLIENTS

Governmental

BERLIN

Bundesministerium für Gesundheit

Federal Ministry of Health

Federal Institute for Drugs and Medical Devices

BZgA Federal Centre for Health Education

Private companies

TECHNISCHE UNIVERSITÄT BERLIN

CHARITÉ UNIVERSITÄTSMEDIZIN BERLIN

HUMBOLDT-UNIVERSITÄT ZU BERLIN

Vivantes

DEUTSCHE GESELLSCHAFT FÜR REPRODUKTIONSMEDIZIN e.V.

DRK KLINIKEN BERLIN
DRK-Schwesternschaft Berlin e.V.

MAX DELBRÜCK CENTER

Helios Klinikum Berlin-Buch

ECRC Experimental & Clinical Research Center

Fertility Center Berlin

NECESSARY CLIENTS

Governmental

BERLIN

Bundesministerium für Gesundheit

Federal Ministry of Health

Federal Institute for Drugs and Medical Devices

BZgA Federal Centre for Health Education

Laboratory research

TECHNISCHE UNIVERSITÄT BERLIN

HUMBOLDT-UNIVERSITÄT ZU BERLIN

DEUTSCHE GESELLSCHAFT FÜR REPRODUKTIONSMEDIZIN e.V.

MAX DELBRÜCK CENTER

ECRC Experimental & Clinical Research Center

Medical expertise

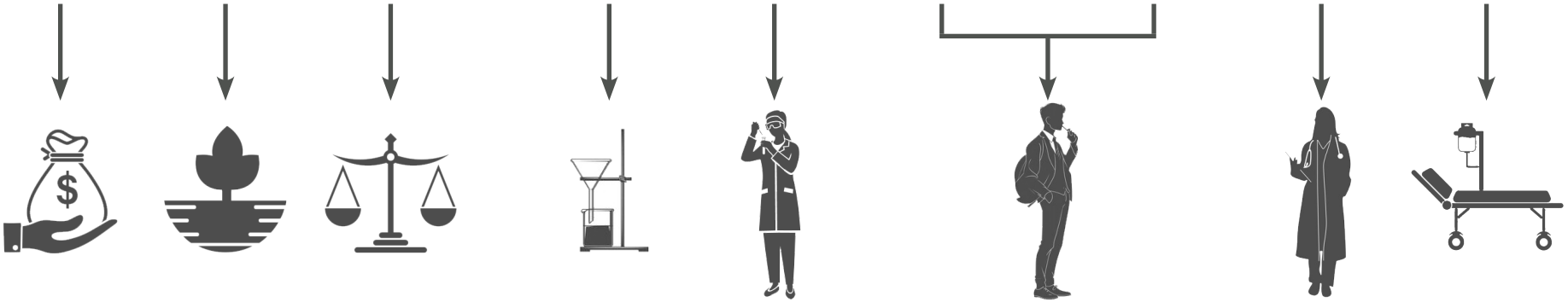
CHARITÉ UNIVERSITÄTSMEDIZIN BERLIN

Vivantes

DRK KLINIKEN BERLIN DRK-Schwesternschaft Berlin e.V.

Helios Klinikum Berlin-Buch

Fertility Center Berlin



WHAT? WHO? WHERE?

WHAT?

WHO?

CLIENT

WHERE?

SITE

SITE REQUIREMENTS

Research Network

Protected Nature Areas

Clean Zones

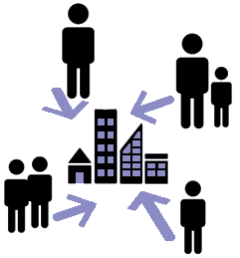
SITE REQUIREMENTS

Research Network

Protected Nature Areas

Clean Zones

Build on geothermal energy potentials



Energy-efficient mobility

SITE REQUIREMENTS

Research Network

Protected Nature Areas

Clean Zones

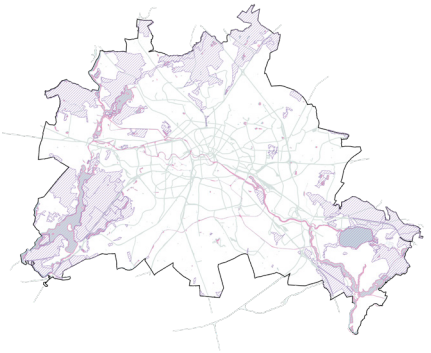
Build on geothermal energy potentials

Energy-efficient mobility

Retrofit: Existing potential

SITE REQUIREMENTS

Research Network

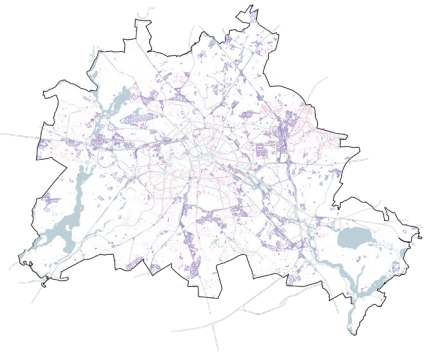


Protected Nature Areas

Clean Zones

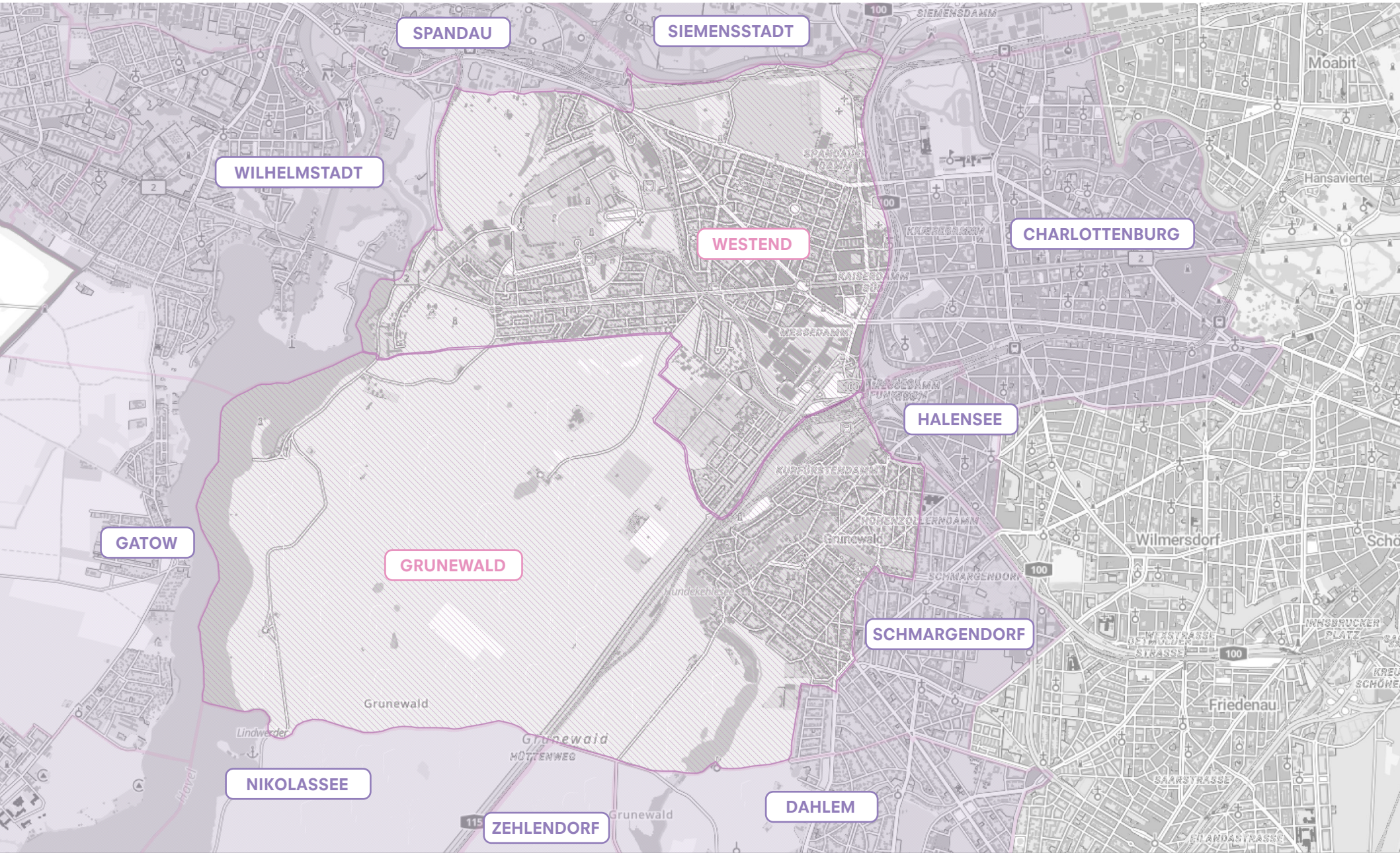
Geothermal Potential

Energy-efficient mobility

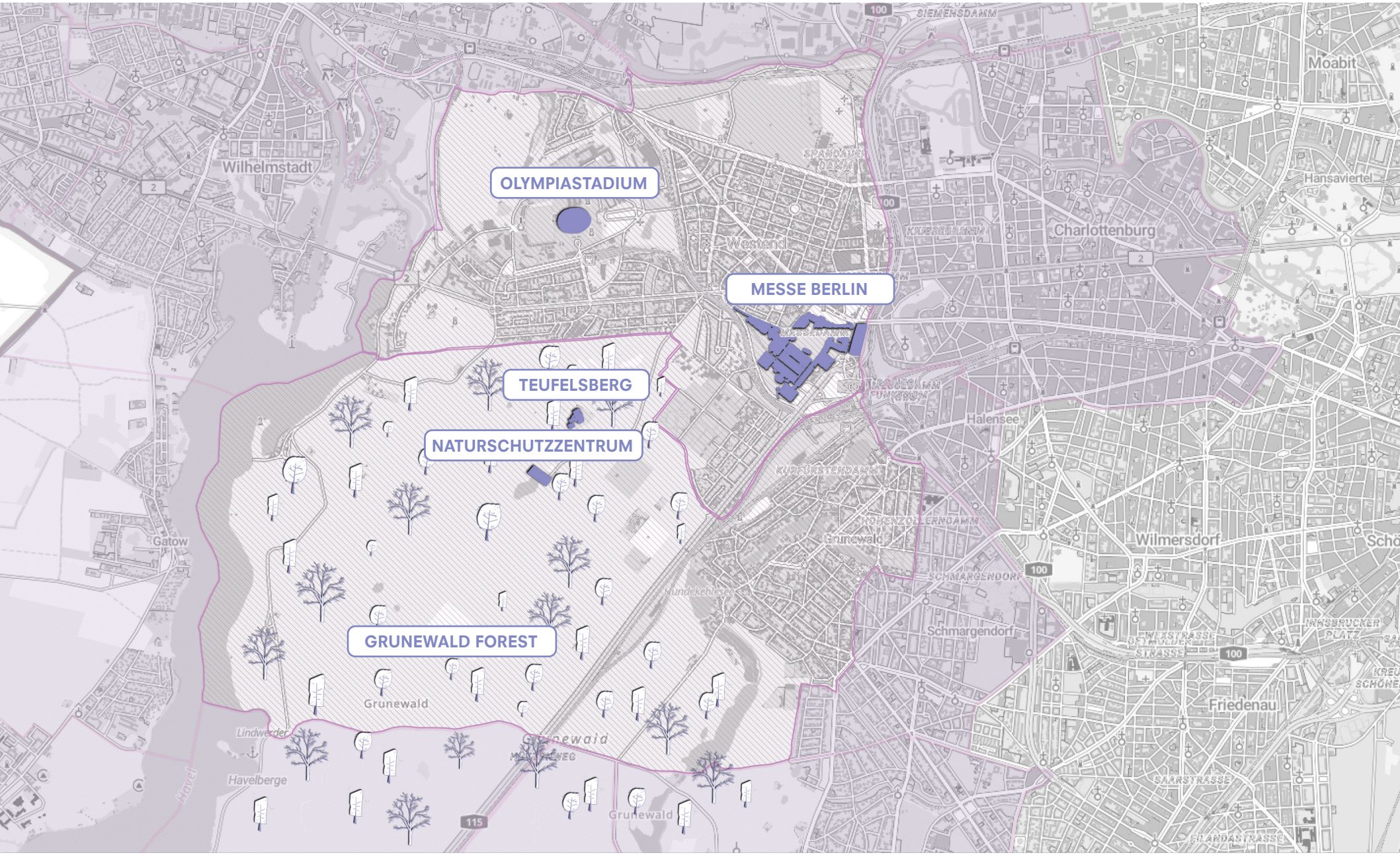


Retrofit: Existing potential

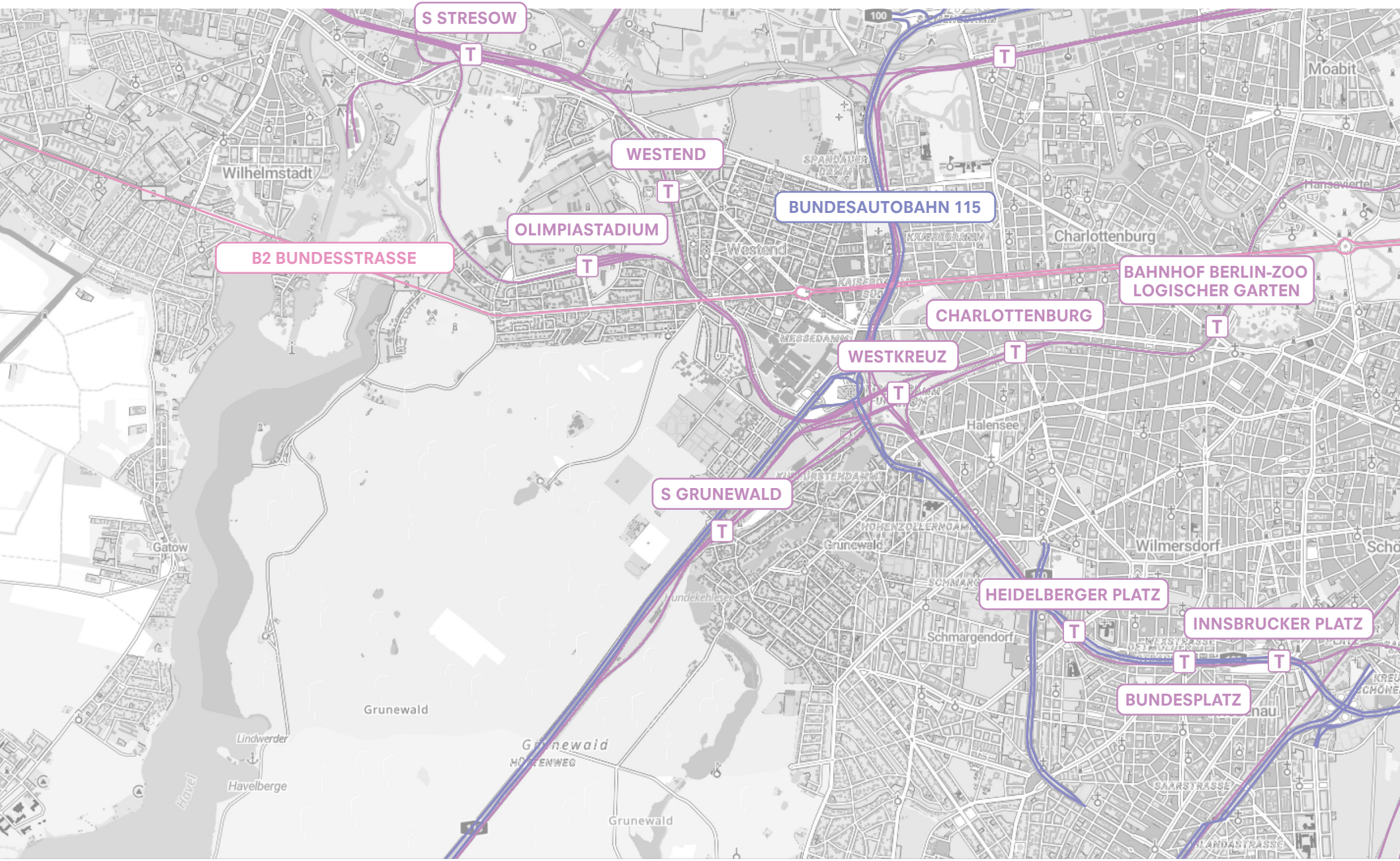
DISTRICTS


SPANDAU
SIEMENSSTADT
WILHELMSTADT
WESTEND
CHARLOTTENBURG
HALENSEE
GATOW
GRUNEWALD
SCHMARGENDORF
NIKOLASSEE
ZEHLENDORF
DAHLEM
Moabit
Hansaviertel
Wilmersdorf
Friedenau
Grunewald
Lindwerder
Havel
SIEMENSDAMM
SPANDAUER DAMM
KAISERDAMM
MESSEDAMM
KURFÜRSTENDAMM
HOHENZOLLERNDAMM
HÜTTENWEG
INNSBRUCKER PLATZ
SAARSTRASSE
BRANDENBURGISCHE STRASSE
100
115
2

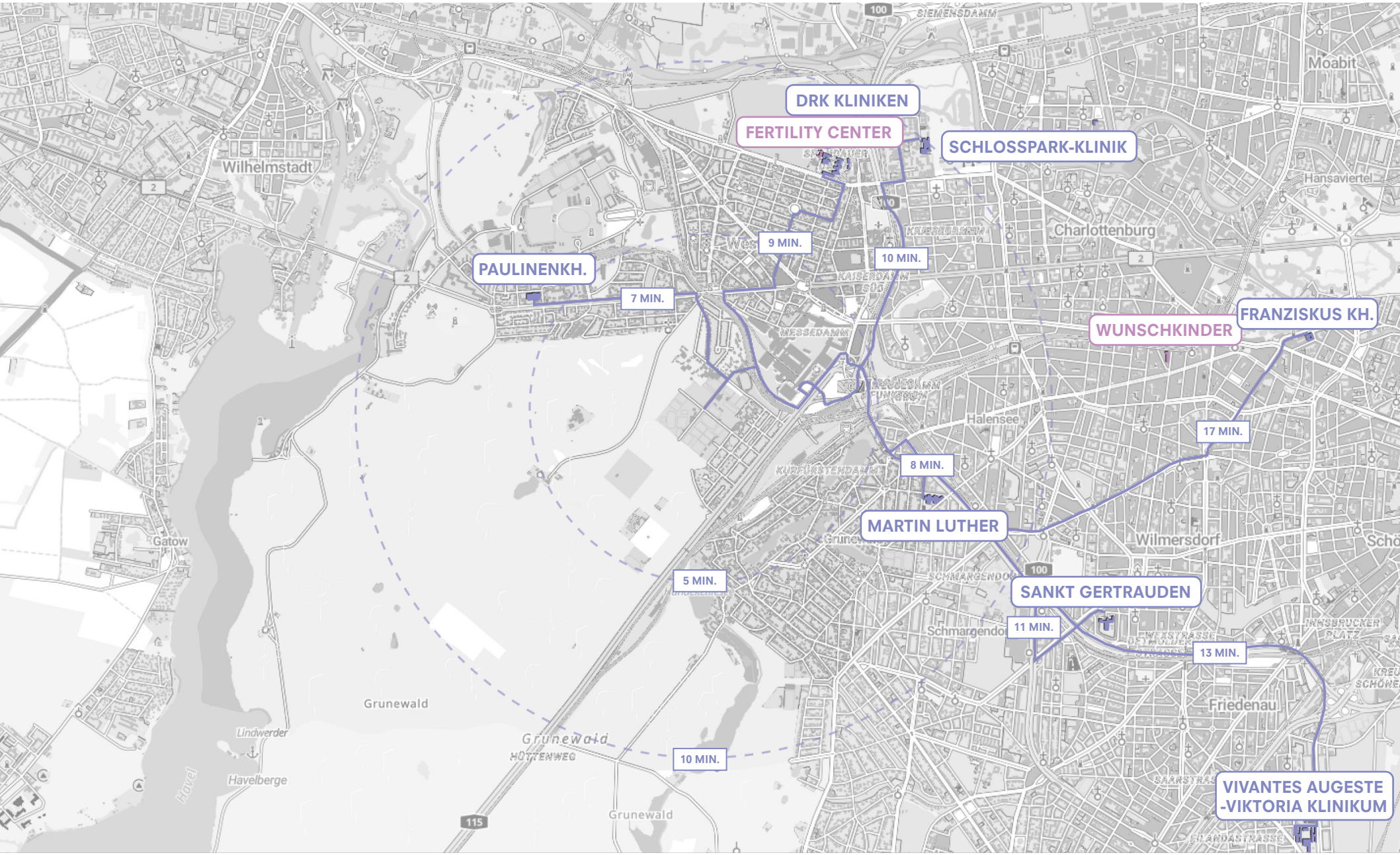
LOCALITIES


OLYMPIASTADIUM
MESSE BERLIN
TEUFELSBERG
NATURSCHUTZZENTRUM
GRUNEWALD FOREST
Wilhelmstadt
Westend
Charlottenburg
Moabit
Hansaviertel
Halensee
Wilmersdorf
Schmargendorf
Friedenau
Gatow
Grunewald
Havelberge
Lindwerder
Havel
SIEMENSDAMM
SPANDAUER DAMM
KAISERDAMM
MESSEDAMM
HOHENZOLLERNDAMM
KURFÜRSTENDAMM
SCHMARGENDORFER STRASSE
INNSBRUCKER PLATZ
SAARSTRASSE
HILDEGARDSTRASSE
HUNDEKEHLESEE
100
115
2

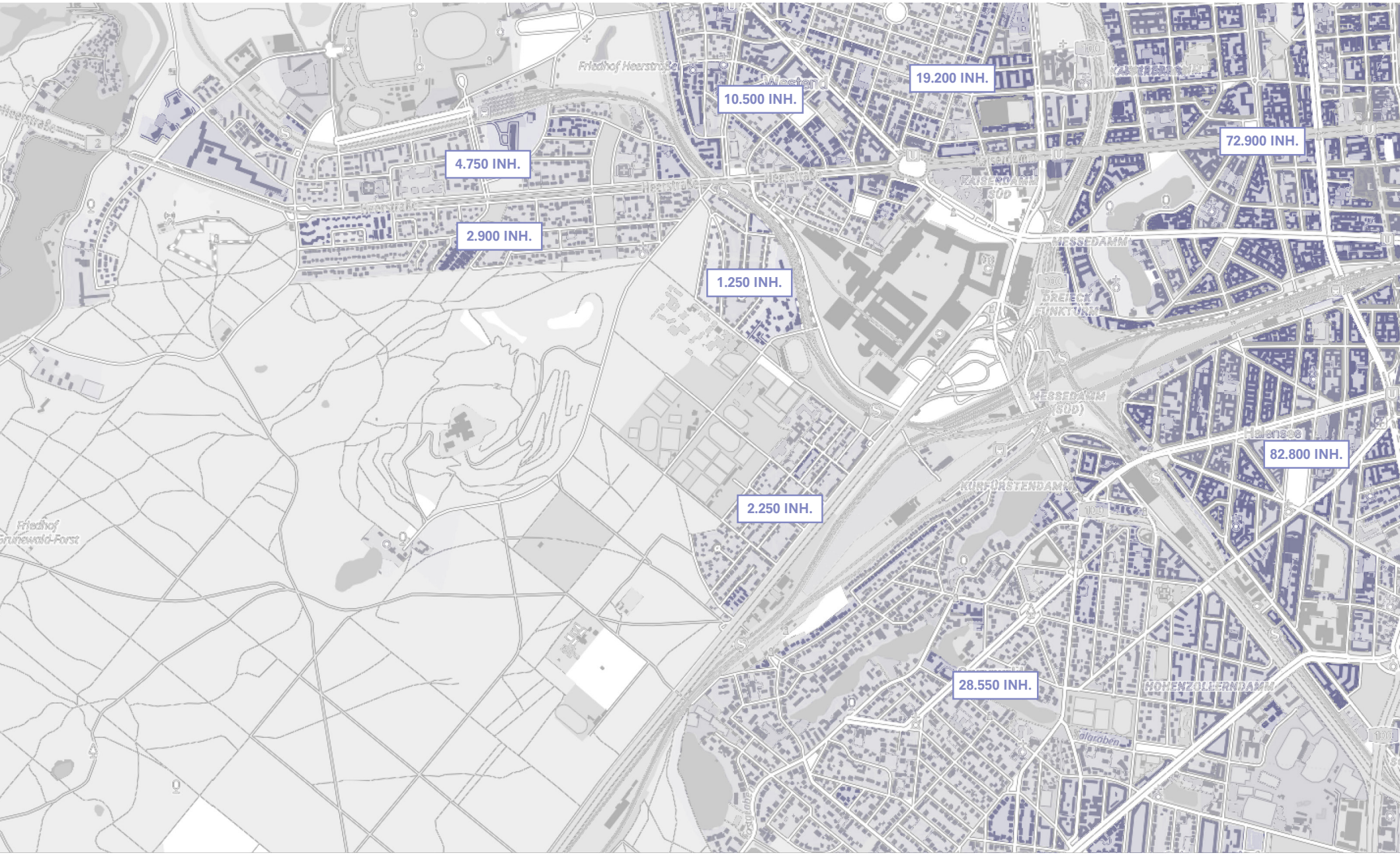
MAIN TRAFFIC FLOWS



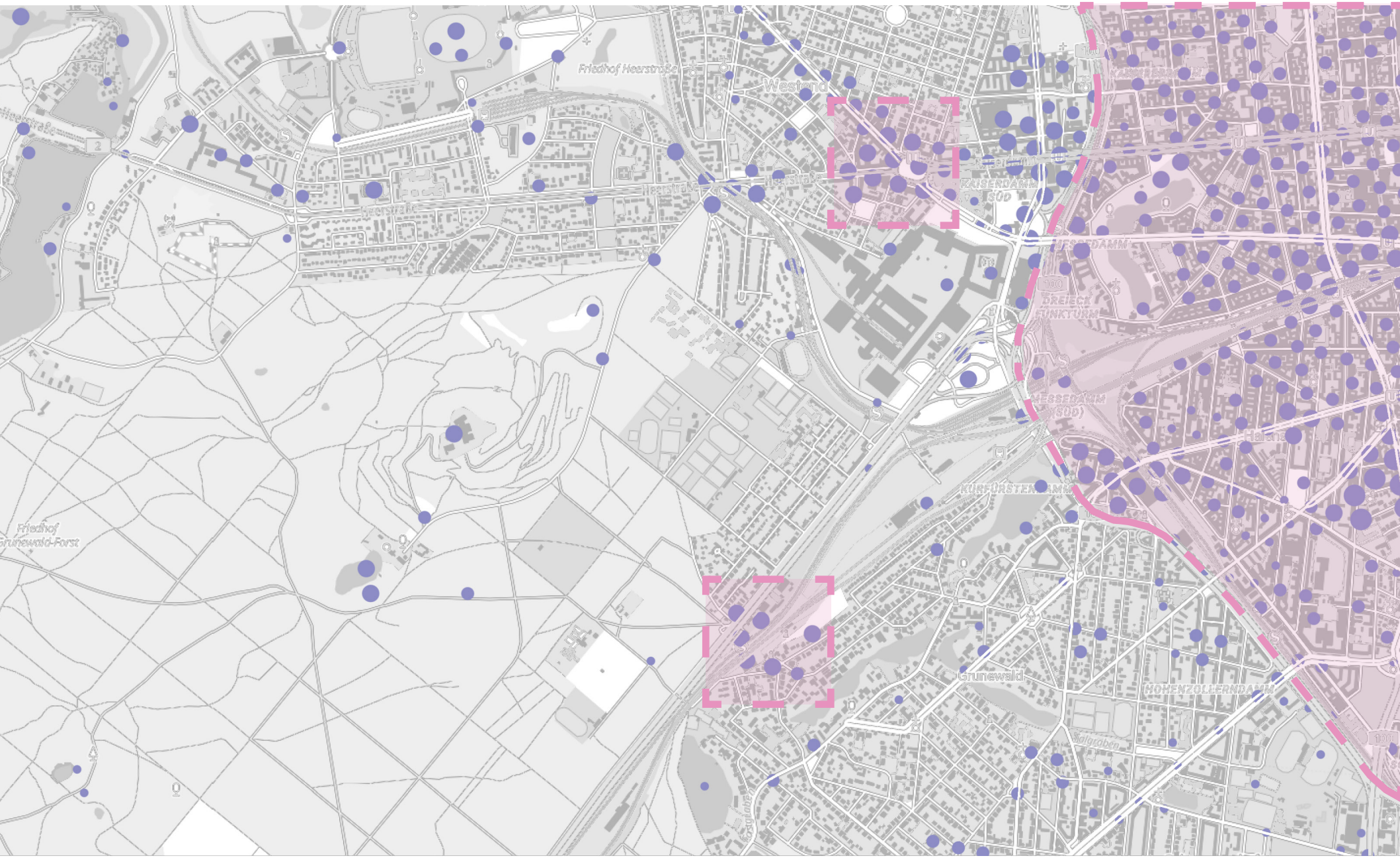
NEARBY KNOWLEDGE



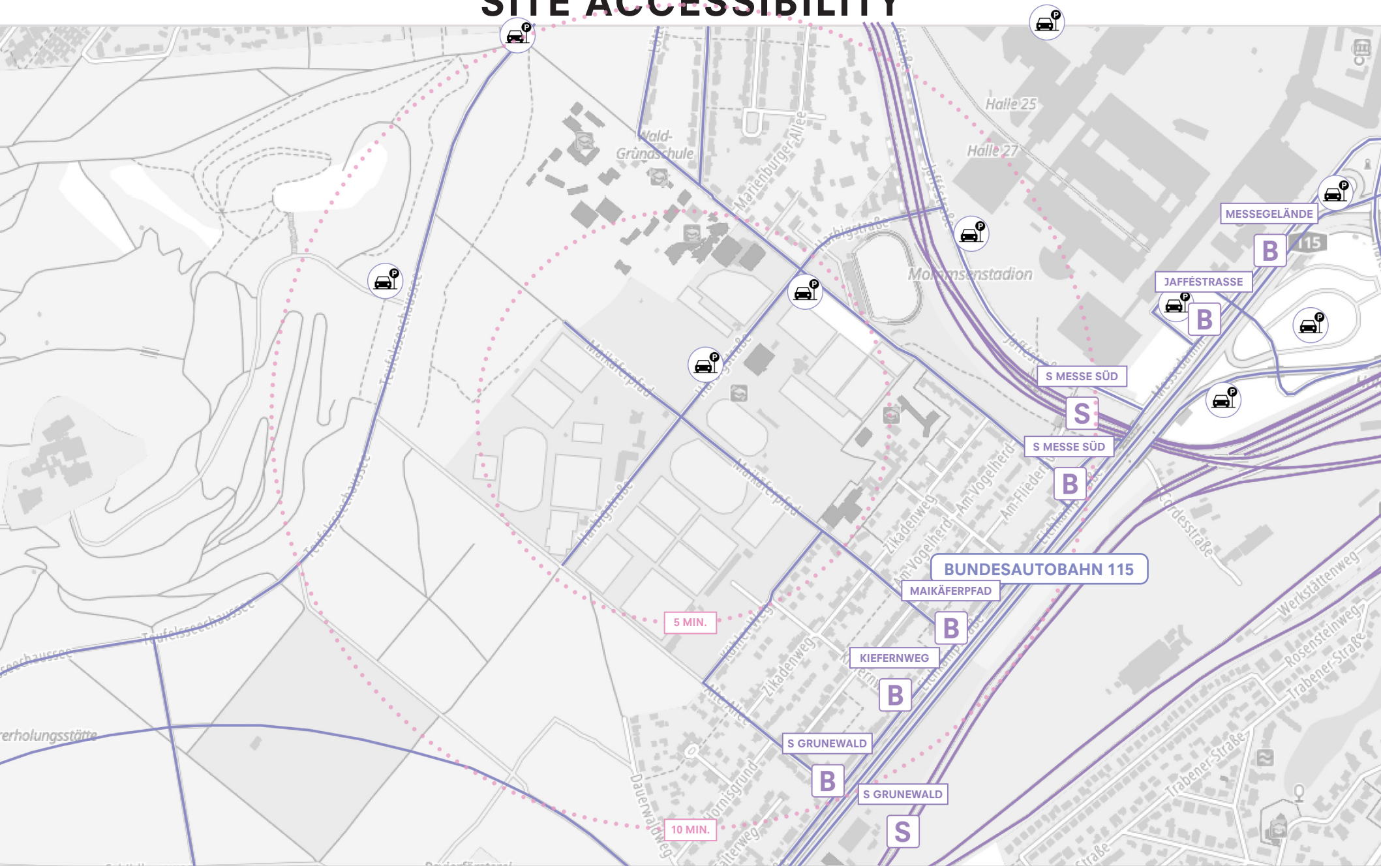
SURROUNDING NEIGHBOURHOODS



BUSY AREAS


Friedhof Heerstraße
Westend
Heerstraße
Friedhof Grunewald-Forst
Grunewald
KAISERDAMM (SÜD)
BREITSCHEIDPLATZ
FUNKTURM
HOHENZOLLERNDAMM

SITE ACCESSIBILITY



CURRENT SITE OCCUPATION

PROPOSED SITE

WHAT? WHO? WHERE?

PROGRAM

CLIENT

SITE

REFERENCE STUDY

Hospitals

Maastricht UMC,
Architecten aan de Maas

Vivantes klinikum Neukolln,
Reinhold Kiehl

New North Zealand Hospital,
Herzog & de Meuron

Brain Hospital, Spreepark,
Daria Khramova

Organ Factory, Schiphol,
Hana Mohar

Laboratories

Children's Medical Research
Foundation, Westmead

Life Sciences Building Ciba
Pharmaceuticals, New Jersey

Heritage Medical Research
Building, University of Alberta

Garvan Institute of Medical
Research, Sydney

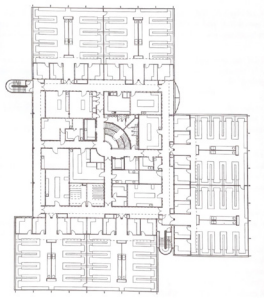
Camelia Botnar
Laboratories, London

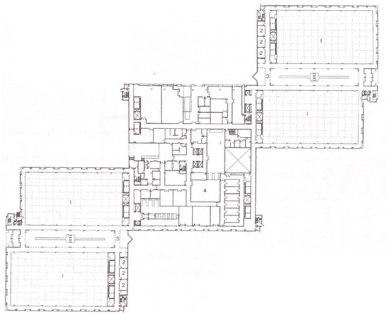
Institute of Medical Science,
The University of Aberdeen

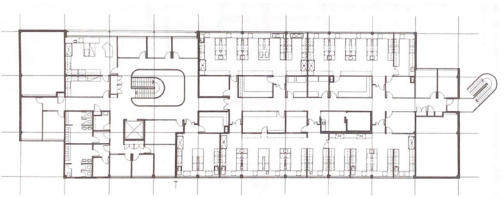
Commonwealth Scientific
Industrial Research Org.,

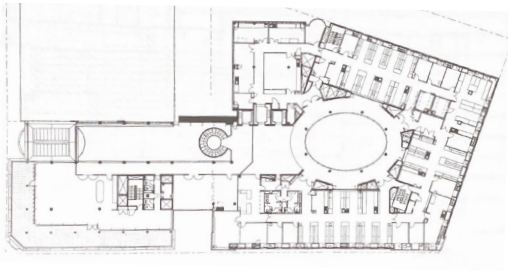
Sir Alexander Fleming
Building, London

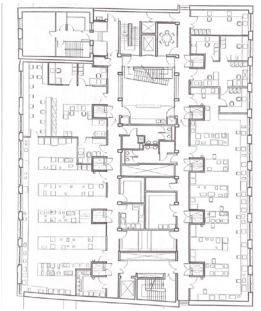
LABORATORY REFERENCES

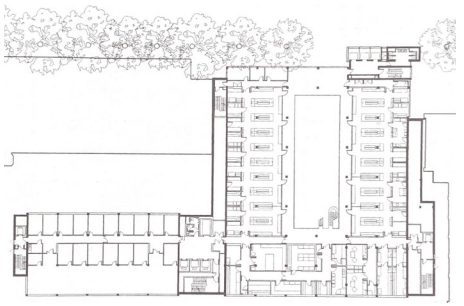


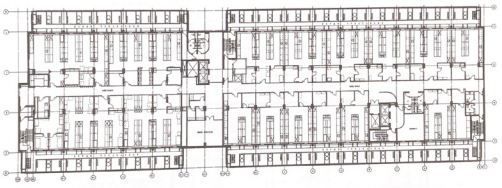


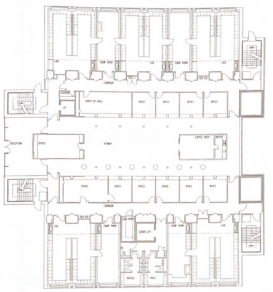












PROGRAM SUMMARY

LABORATORY	%	m²
Open lab	13.1 %	2.000 m²
Lab support	6.6 %	1.000 m²
Dark room	0.2 %	31 m²
Console room	0.2 %	31 m²
Scanning microscopes	0.2 %	31 m²
Preparation room	0.2 %	31 m²
Equipment room	3 %	450 m²
Tissue culture	0.7 %	100 m²
Isotope room	0.2 %	31 m²
Cold room	0.4 %	62 m²
Storage	0.4 %	60 m²
Couriers & visitors lobby	0.8 %	115 m²
Sterile wash	0.2 %	31 m²
Filtration	0.5 %	75 m²
Clean room	1.3 %	200 m²
Procedure room	3.3 %	500 m²
Incubation room	3.3 %	500 m²
Total	**26.3 %**	**4.000 m²**

RESEARCH OFFICES	%	m²
Office space	9.6 %	1.470 m²
Open office	5.1 %	780 m²
Faculty office	1.7 %	260 m²
Conference space	1.1 %	170 m²
Informal space	1.7 %	260 m²
Write-up area	2.6 %	400 m²
Reference library	0.8 %	117 m²
Shared records storage	0.1 %	15 m²
Total	**13.1 %**	**2.002 m²**

TAKE-IN	%	m²
Consulting suites	0.3 %	39 m²
Storage & cleaning fac.	0.1 %	20 m²
Pram shelter	0.3 %	40 m²
Reception area	0.3 %	50 m²
DNA sampling	0.3 %	45 m²
Common room	0.3 %	40 m²
Health education	0.7 %	100 m²
Contracting room	0.3 %	52 m²
Waiting area	0.7 %	100 m²
Examination room	0.2 %	27 m²
Sanitary accommodation	0.3 %	50 m²
Exit lobby	0.5 %	75 m²
Total	**4.2 %**	**638 m²**

PROGRAM SUMMARY

LABORATORY	Daylight	Public
Open lab	○	●
Lab support		
Dark room	●	●
Console room	●	●
Scanning microscopes	●	●
Preparation room	●	●
Equipment room	●	●
Tissue culture	●	●
Isotope room	●	●
Cold room	●	●
Storage	●	●
Couriers & visitors lobby	○	●
Sterile wash	●	●
Filtration	●	●
Clean room	●	●
Procedure room	○	◉
Incubation room	○	◉

RESEARCH OFFICES	Daylight	Public
Office space		
Open office	○	●
Faculty office	○	●
Conference space	○	●
Informal space	◉	●
Write-up area	○	●
Reference library	◉	●
Shared records storage	●	●

TAKE-IN	Daylight	Public
Consulting suites	○	◉
Storage & cleaning fac.	●	●
Pram shelter	○	○
Reception area	○	○
DNA sampling	○	◉
Common room	○	○
Health education	○	○
Contracting room	○	◉
Waiting area	○	○
Examination room	○	◉
Sanitary accommodation	●	○
Exit lobby	○	○

LEGEND

- ○ Natural daylight necessary
- ◉ Natural daylight desirable
- ● Natural daylight unnecessary
- ○ Publicly accessible
- ◉ Semi-public
- ● Private area [staff only]

PROGRAM SUMMARY

LABORATORY

LEGEND

- ○ Various functional relationships
- ◎ A few functional relationships
- ● No functional relationships

TAKE-IN	%	m²
Consulting suites	0.3 %	39 m²
Storage & cleaning fac.	0.1 %	20 m²
Pram shelter	0.3 %	40 m²
Reception area	0.3 %	50 m²
DNA sampling	0.3 %	45 m²
Common room	0.3 %	40 m²
Health education	0.7 %	100 m²
Contracting room	0.3 %	52 m²
Waiting area	0.7 %	100 m²
Examination room	0.2 %	27 m²
Sanitary accommodation	0.3 %	50 m²
Exit lobby	0.5 %	75 m²
Total	**4.2 %**	**638 m²**

PROGRAM SUMMARY

LABORATORY	%	m²
Open lab	13.1 %	2.000 m²
Lab support	6.6 %	1.000 m²
Dark room	0.2 %	31 m²
Console room	0.2 %	31 m²
Scanning microscopes	0.2 %	31 m²
Preparation room	0.2 %	31 m²
Equipment room	3 %	450 m²
Tissue culture	0.7 %	100 m²
Isotope room	0.2 %	31 m²
Cold room	0.4 %	62 m²
Storage	0.4 %	60 m²
Couriers & visitors lobby	0.8 %	115 m²
Sterile wash	0.2 %	31 m²
Filtration	0.5 %	75 m²
Clean room	1.3 %	200 m²
Procedure room	3.3 %	500 m²
Incubation room	3.3 %	500 m²
Total	**26.3 %**	**4.000 m²**

RESEARCH OFFICES	Office space	Open office	Faculty office	Conference space	Informal space	Write-up area	Reference library	Shared records storage
Office space								
Open office			○	○	○	●	○	●
Faculty office				○	○	●	○	●
Conference space					●	●	●	●
Informal space						●	●	●
Write-up area							○	◯
Reference library								○
Shared records storage								

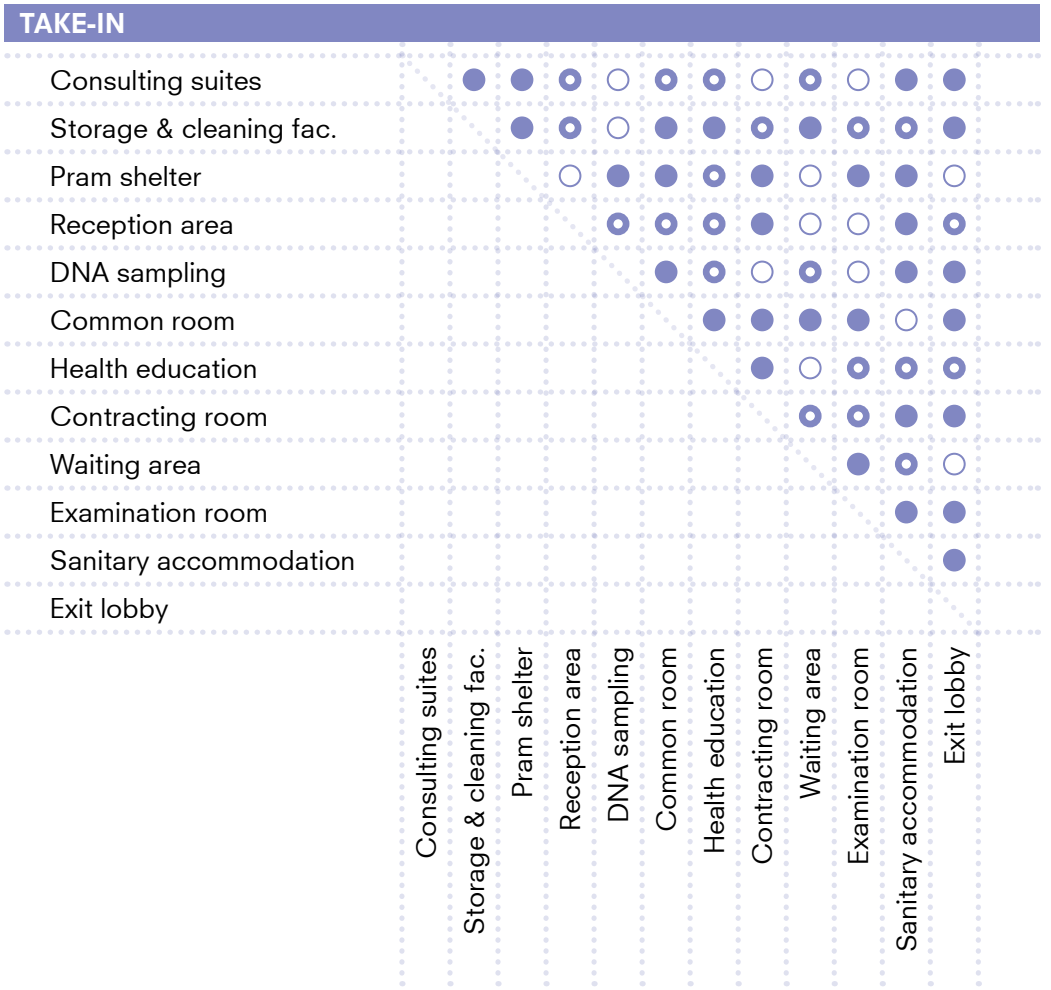
	%	m²
	0.3 %	39 m²
	0.1 %	20 m²
	0.3 %	40 m²
	0.3 %	50 m²
	0.3 %	45 m²
	0.3 %	40 m²
	0.7 %	100 m²
	0.3 %	52 m²
	0.7 %	100 m²
	0.2 %	27 m²
	0.3 %	50 m²
	0.5 %	75 m²
	4.2 %	**638 m²**

LEGEND

- ◯ Various functional relationships
- ○ A few functional relationships
- ● No functional relationships

PROGRAM SUMMARY

LABORATORY	%	m²
Open lab	13.1 %	2.000 m²
Lab support	6.6 %	1.000 m²
Dark room	0.2 %	31 m²
Console room	0.2 %	31 m²
Scanning microscopes	0.2 %	31 m²
Preparation room	0.2 %	31 m²
Equipment room	3 %	450 m²
Tissue culture	0.7 %	100 m²
Isotope room	0.2 %	31 m²
Cold room	0.4 %	62 m²
Storage	0.4 %	60 m²
Couriers & visitors lobby	0.8 %	115 m²
Sterile wash	0.2 %	31 m²
Filtration	0.5 %	75 m²
Clean room	1.3 %	200 m²
Procedure room	3.3 %	500 m²
Incubation room	3.3 %	500 m²
Total	**26.3 %**	**4.000 m²**



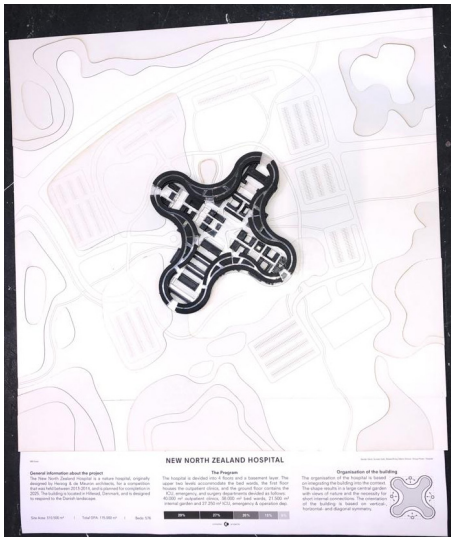
LEGEND

- ○ Various functional relationships
- ◎ A few functional relationships
- ● No functional relationships

HOSPITAL REFERENCES

Vivantes Klinikum

New North Zealand



Brain Hospital

Organ Factory

PROGRAM SUMMARY

HOSPITAL	%	m²
Inpatient dept.		
Inpatient room	9.2 %	1.400 m²
Rooming-in area	1.6 %	240 m²
Patient area	4.3 %	660 m²
Medical staff area	1.6 %	240 m²
Patient bathroom	1.4 %	220 m²
Incubator space	0.3 %	40 m²
Play room	0.8 %	120 m²
Common room	2.6 %	400 m²
Examination room	1.3 %	200 m²
Consulting room	1.1 %	169 m²
Nursing station	0.8 %	120 m²
Staff room	2.3 %	350 m²
Emergency room	1.1 %	160 m²
Medicine/Utility room	1.6 %	250 m²
Total	**20.8 %**	**3.169 m²**

HOSPITAL	%	m²
Outpatient dept.		
Outpatient room	9.2 %	1.400 m²
Rooming-in area	1.6 %	240 m²
Patient area	4.3 %	660 m²
Medical staff area	1.6 %	240 m²
Patient bathroom	1.4 %	220 m²
Incubator space	0.3 %	40 m²
Play room	0.8 %	120 m²
Common room	2.6 %	400 m²
Check-up area	6 %	920 m²
Nursing station	0.8 %	120 m²
Staff room	2.3 %	350 m²
Operating room	1.7 %	252 m²
Viewing space	0.4 %	66 m²
Patient library	0.8 %	117 m²
Medicine/Utility room	1.6 %	250 m²
Pharmacy	1.1 %	160 m²
Total	**27.3 %**	**4.155 m²**
Total	**48.1 %**	**7.324 m²**

ACADEMIC DEPT.	%	m²
Classroom	1.6 %	240 m²
Computer lab	1.1 %	165 m²
Laboratory classroom	1.1 %	170 m²
Lecture hall	0.8 %	125 m²
Seminar room	0.6 %	90 m²
Workshop area	0.4 %	60 m²
Library	0.8 %	117 m²
Total	**6.3 %**	**967 m²**

INSTALLATIONS	%	m²
Geothermal unit	2 %	304 m²
Total	**2 %**	**304 m²**
Total building	**100 %**	**15.235 m²**

PROGRAM SUMMARY

HOSPITAL	Daylight	Public
Inpatient dept.		
Inpatient room		
Rooming-in area	○	◎
Patient area	○	◎
Medical staff area	○	◎
Patient bathroom	●	◎
Incubator space	○	◎
Play room	◎	○
Common room	○	○
Examination room	○	◎
Consulting room	○	◎
Nursing station	○	◎
Staff room	◎	●
Emergency room	○	●
Medicine/Utility room	●	●

HOSPITAL	Daylight	Public
Outpatient dept.		
Outpatient room		
Rooming-in area	○	◎
Patient area	○	◎
Medical staff area	○	◎
Patient bathroom	●	◎
Incubator space	○	◎
Play room	◎	○
Common room	○	○
Check-up area	○	◎
Nursing station	○	◎
Staff room	◎	●
Operating room	●	◎
Viewing space	●	◎
Patient library	◎	○
Medicine/Utility room	●	●
Pharmacy	●	○

ACADEMIC DEPT.	Daylight	Public
Classroom	○	◎
Computer lab	○	◎
Laboratory classroom	○	◎
Lecture hall	◎	◎
Seminar room	○	◎
Workshop area	○	◎
Library	◎	◎

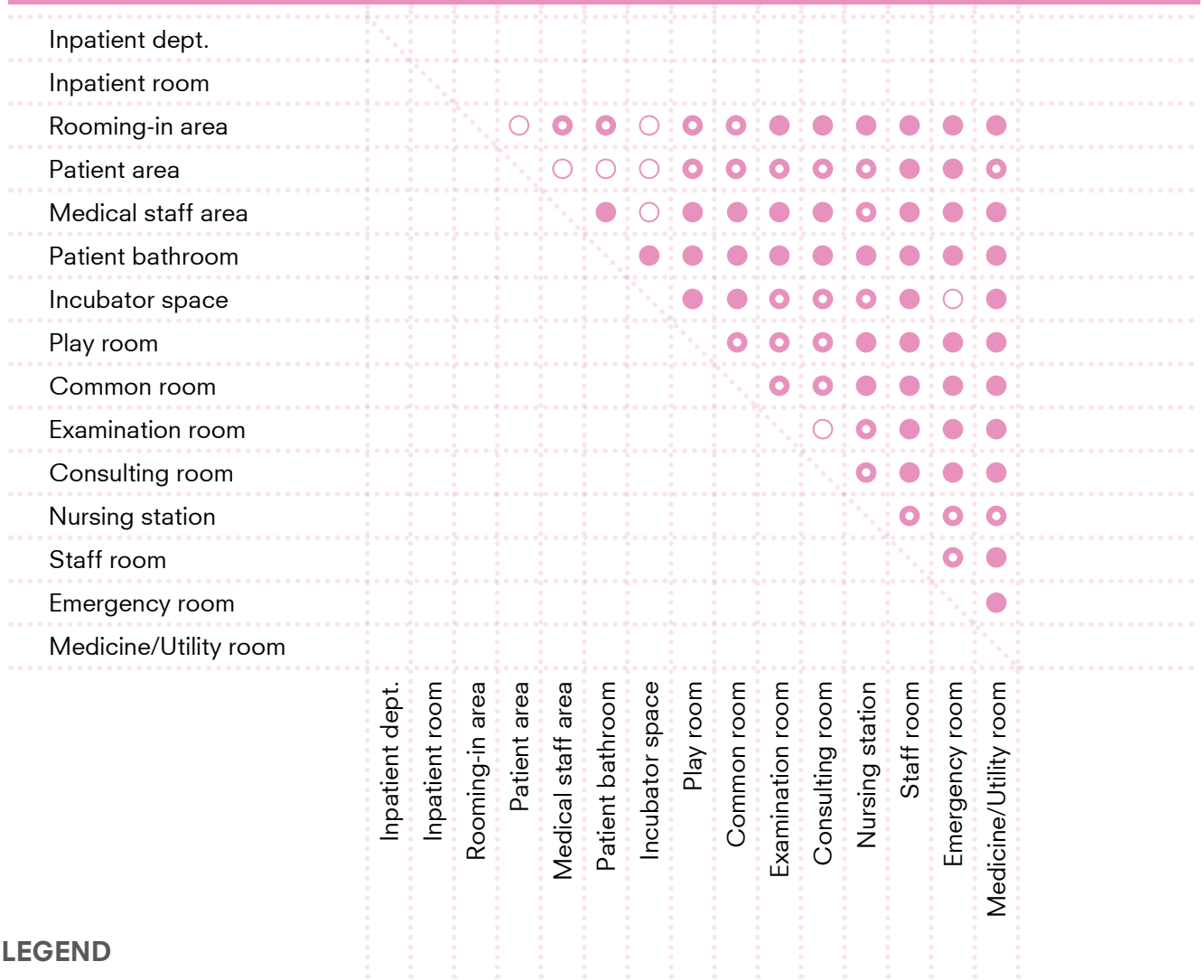
INSTALLATIONS	Daylight	Public
Geothermal unit	●	●

LEGEND

- ○ Natural daylight necessary
- ◎ Natural daylight desirable
- ● Natural daylight unnecessary
- ○ Publicly accessible
- ◎ Semi-public
- ● Private area [staff only]

PROGRAM SUMMARY

HOSPITAL



LEGEND

- ○ Various functional relationships
- ◎ A few functional relationships
- ● No functional relationships

PROGRAM SUMMARY

HOSPITAL	%	m²
Inpatient dept.		
Inpatient room	9.2 %	1.400 m²
Rooming-in area	1.6 %	240 m²
Patient area	4.3 %	660 m²
Medical staff area	1.6 %	240 m²
Patient bathroom	1.4 %	220 m²
Incubator space	0.3 %	40 m²
Play room	0.8 %	120 m²
Common room	2.6 %	400 m²
Examination room	1.3 %	200 m²
Consulting room	1.1 %	169 m²
Nursing station	0.8 %	120 m²
Staff room	2.3 %	350 m²
Emergency room	1.1 %	160 m²
Medicine/Utility room	1.6 %	250 m²
Total	**20.8 %**	**3.169 m²**

LEGEND

- ○ Various functional relationships
- ◎ A few functional relationships
- ● No functional relationships

PROGRAM SUMMARY

HOSPITAL	%	m²
Inpatient dept.		
Inpatient room	9.2 %	1.400 m²
Rooming-in area	1.6 %	240 m²
Patient area	4.3 %	660 m²
Medical staff area	1.6 %	240 m²
Patient bathroom	1.4 %	220 m²
Incubator space	0.3 %	40 m²
Play room	0.8 %	120 m²
Common room	2.6 %	400 m²
Examination room	1.3 %	200 m²
Consulting room	1.1 %	169 m²
Nursing station	0.8 %	120 m²
Staff room	2.3 %	350 m²
Emergency room	1.1 %	160 m²
Medicine/Utility room	1.6 %	250 m²
Total	**20.8 %**	**3.169 m²**

HOSPITAL	%
Outpatient dept.	
Outpatient room	9.2 %
Rooming-in area	1.6 %
Patient area	4.3 %
Medical staff area	1.6 %
Patient bathroom	1.4 %
Incubator space	0.3 %
Play room	0.8 %
Common room	2.6 %
Check-up area	6 %
Nursing station	0.8 %
Staff room	2.3 %
Operating room	1.7 %
Viewing space	0.4 %
Patient library	0.8 %
Medicine/Utility room	1.6 %
Pharmacy	1.1 %
Total	**27.3 %**
Total	**48.1 %**

ACADEMIC DEPT.	Classroom	Computer lab	Laboratory classroom	Lecture hall	Seminar room	Workshop area	Library
Classroom	●	●	●	○	○	●	
Computer lab		○	●	○	●	○	
Laboratory classroom			●	○	○	●	
Lecture hall				●	●	●	
Seminar room					●	●	
Workshop area						●	
Library							

LEGEND

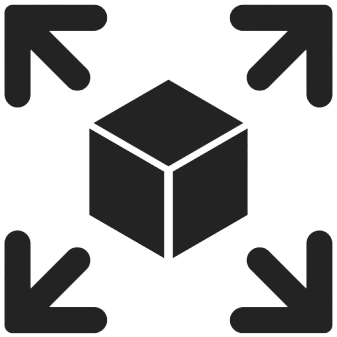
- ○ Various functional relationships
- ◉ A few functional relationships
- ● No functional relationships

PROGRAM BAR


HOSPITAL
ACADEMIC
RESEARCH OFFICE
LABORATORY
21.600 m²
3.500 m²
2.500 m²
6.400 m²
16.000 m²
OUTPATIENT UNIT
INCUBATOR ROOMS
RESEARCH OFFICE
OPEN LAB
LAB SUPPORT
16.800 m²
4.800 m²
3.500 m²
2.500 m²
6.400 m²
8.000 m²
8.000 m²

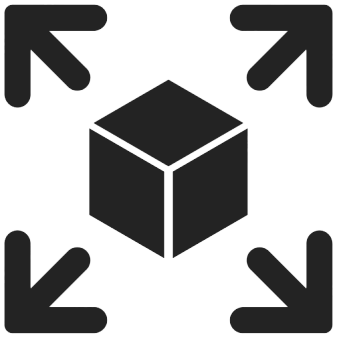
INDEX

MAIN DRIVERS



EXPANDABLE

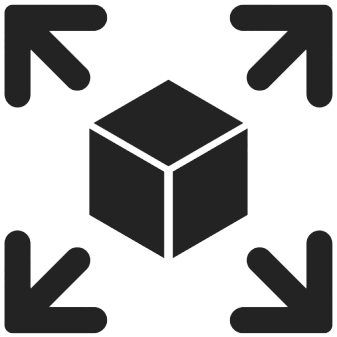
MAIN DRIVERS



EXPANDABLE

SAFE & SOCIAL INTEGRATION

MAIN DRIVERS



EXPANDABLE

SAFE & SOCIAL INTEGRATION

INTEGRATION OF (PROTECTED) NATURE

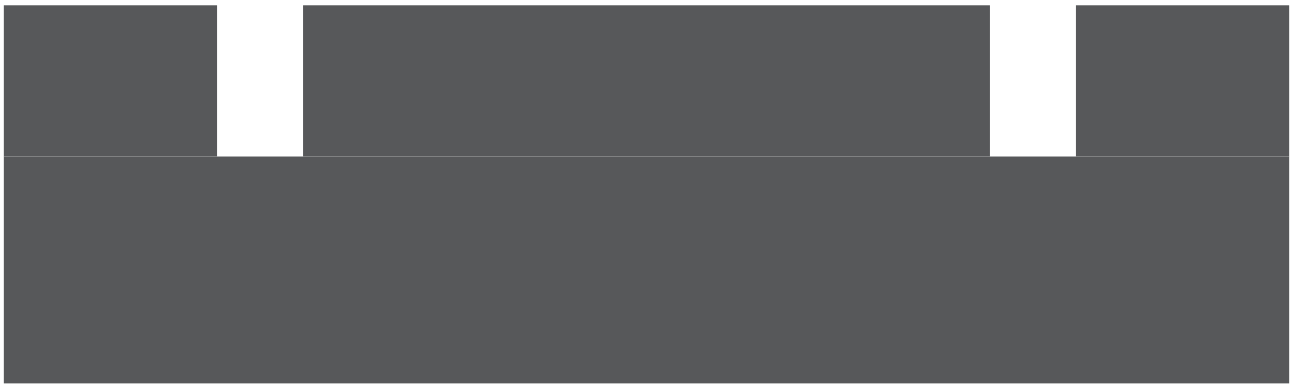
LAYERED SYSTEM

FOREST SIDE

PUBLIC SIDE

LAYERED SYSTEM

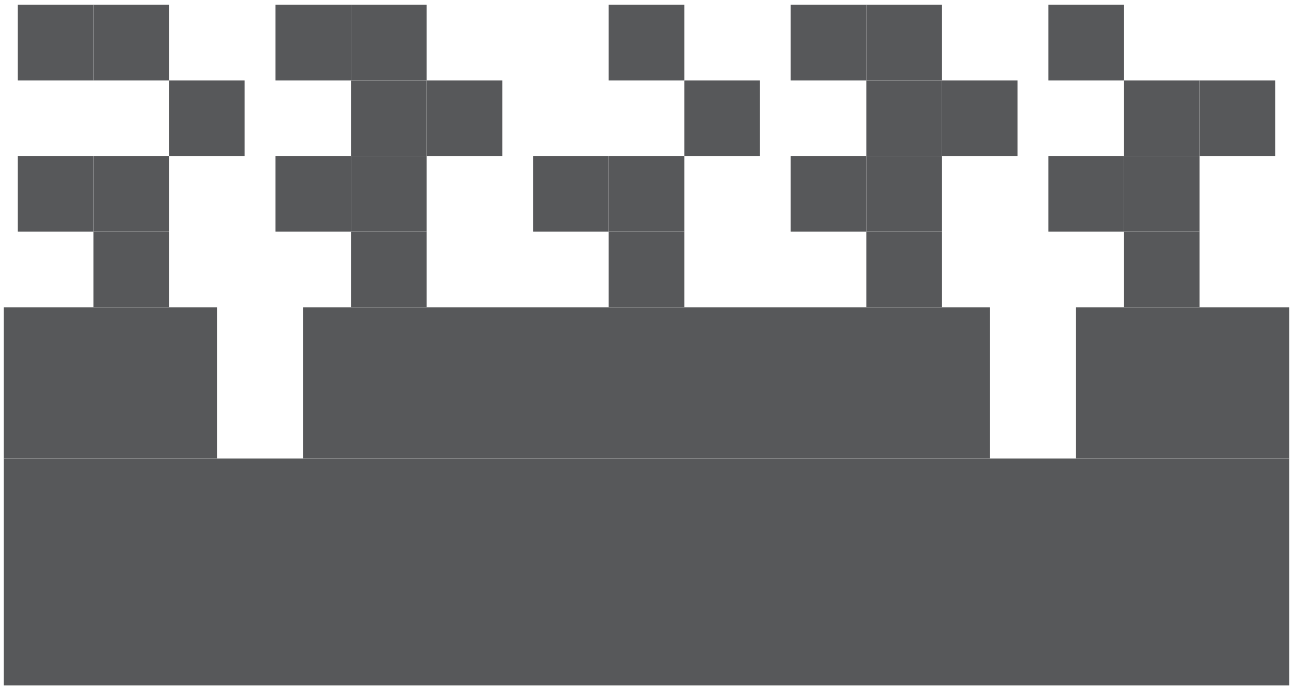
FOREST SIDE



PUBLIC SIDE

LAYERED SYSTEM

FOREST SIDE



PUBLIC SIDE

LAYERED SYSTEM

FOREST SIDE

PUBLIC SIDE

LAYERED SYSTEM

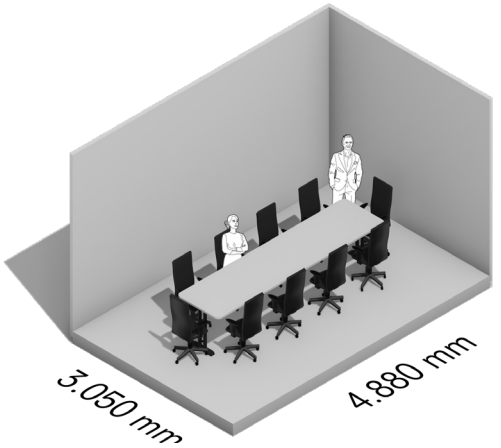
FOREST SIDE

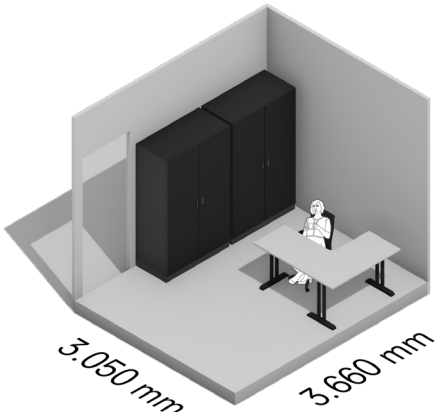
PUBLIC SIDE

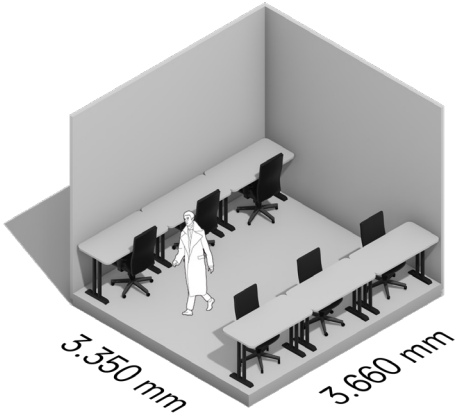
INDEX

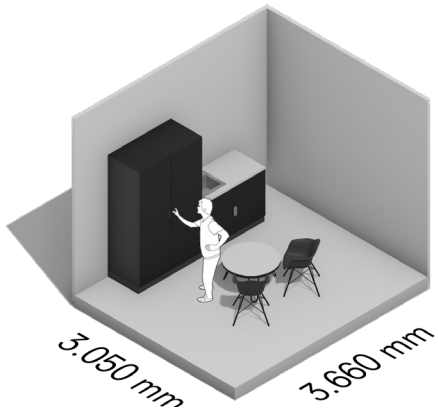
1. GRID

RESEARCH OFFICE ROOMS

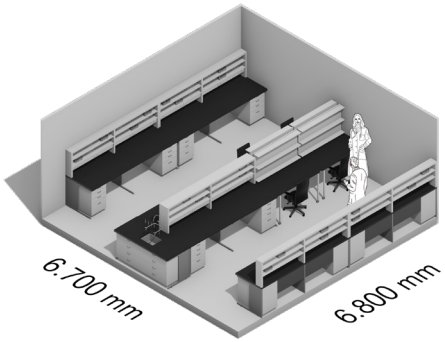


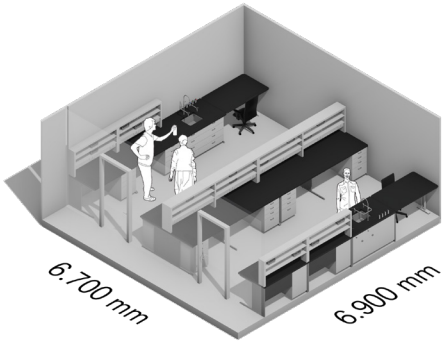


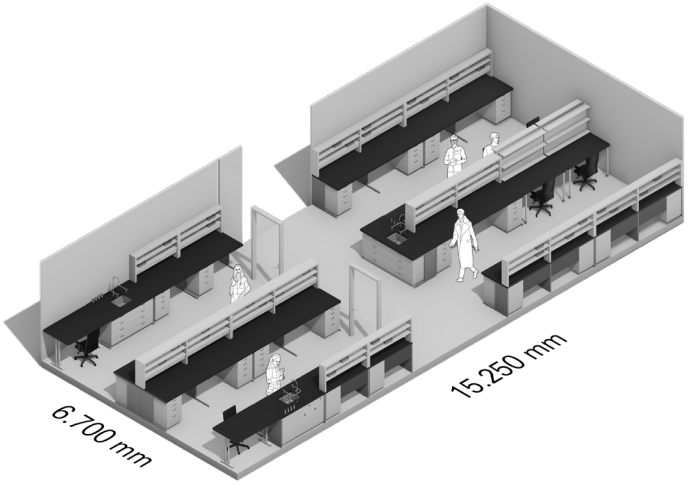




LABORATORY ROOMS

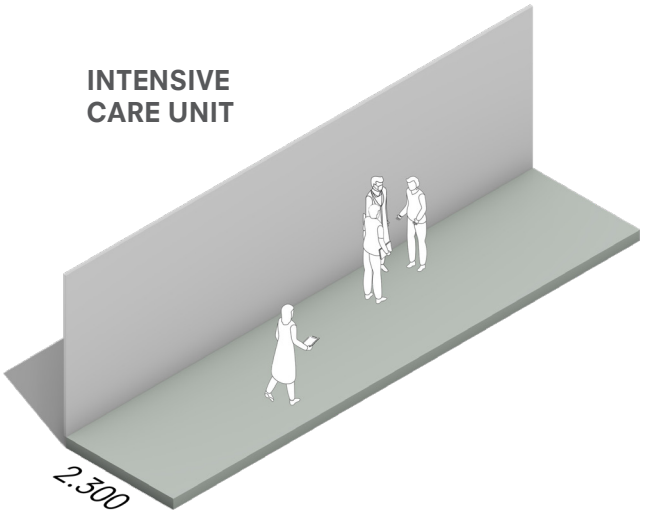




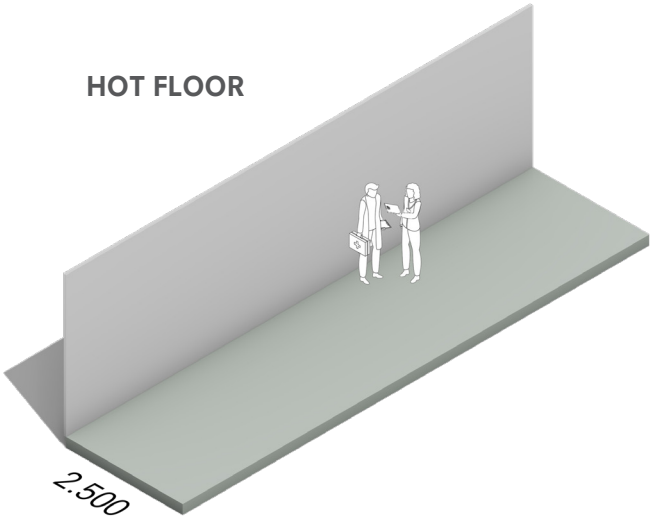


CORRIDOR MEASUREMENTS

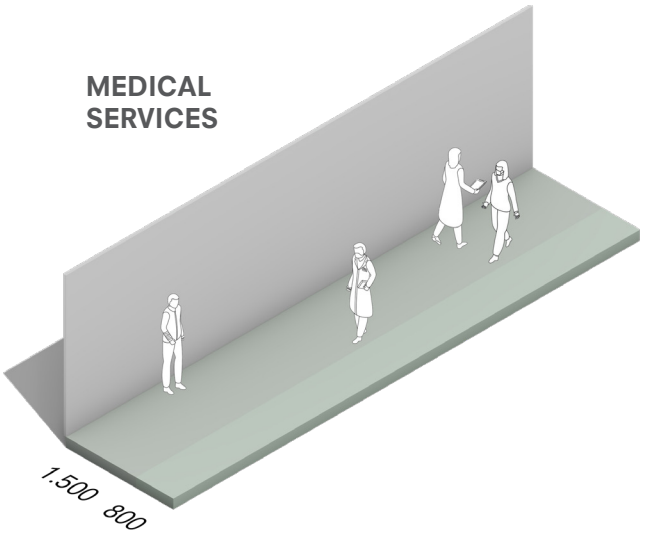
INTENSIVE CARE UNIT



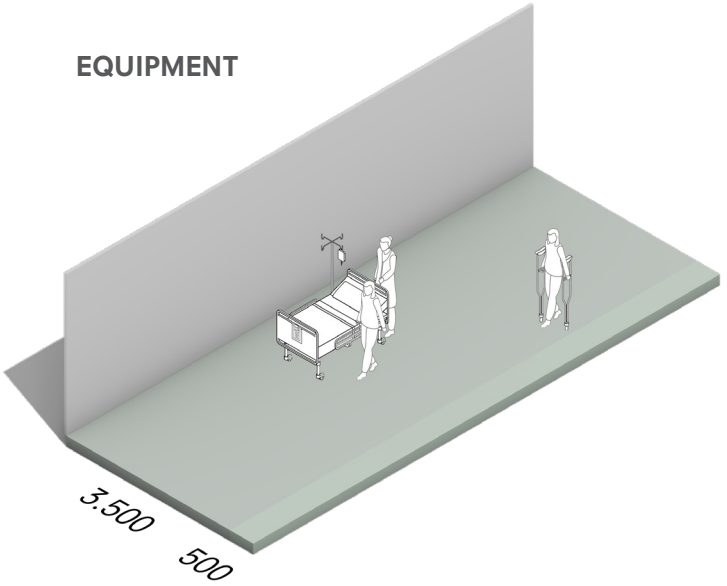
HOT FLOOR



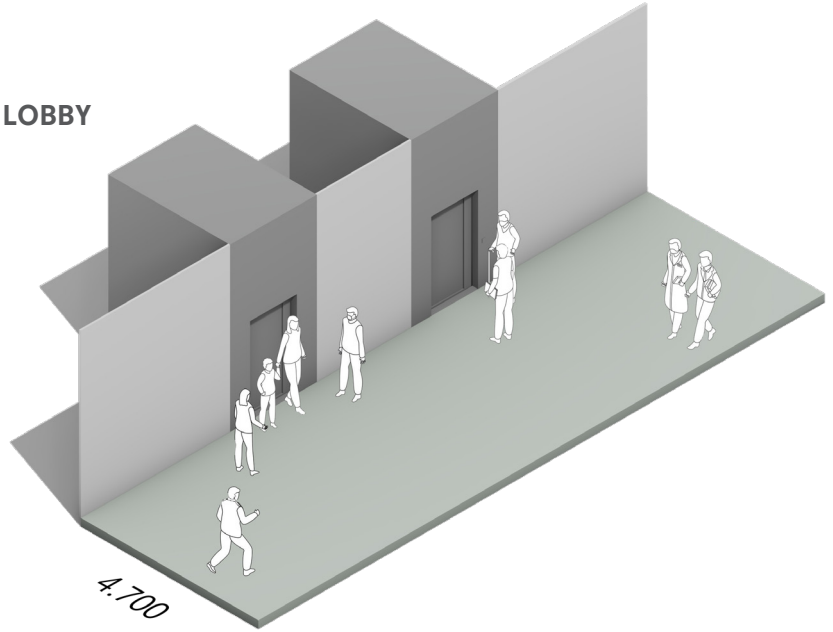
MEDICAL SERVICES



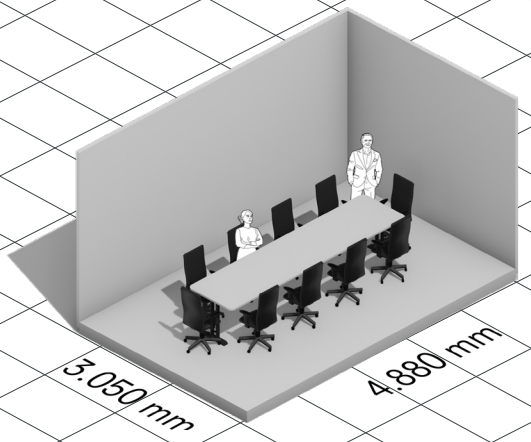
EQUIPMENT

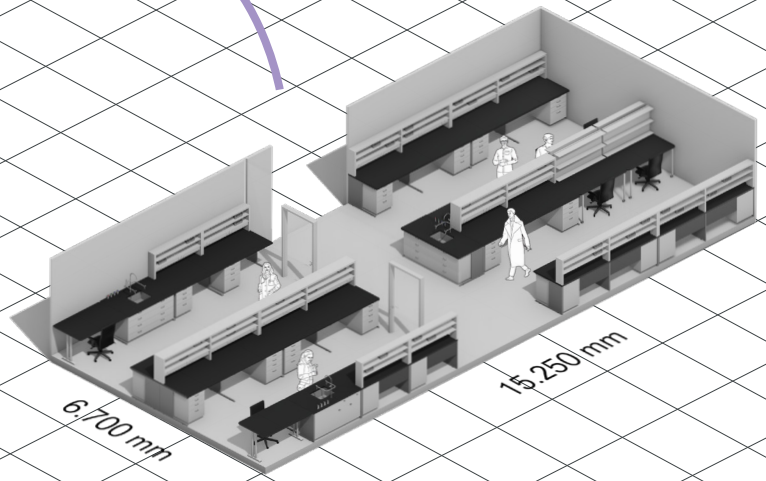


LOBBY



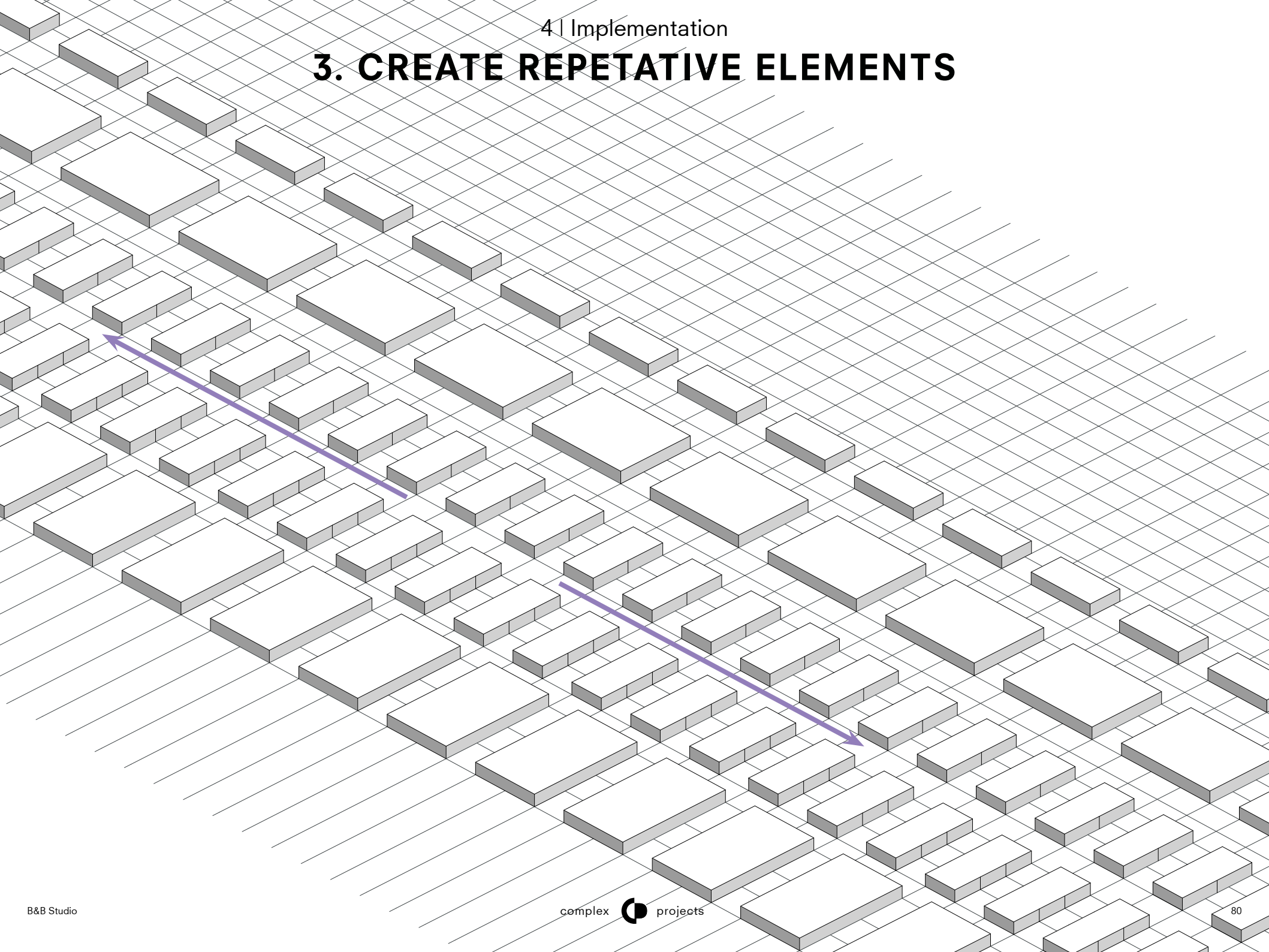
2. ALTER GRID TO FUNCTIONS



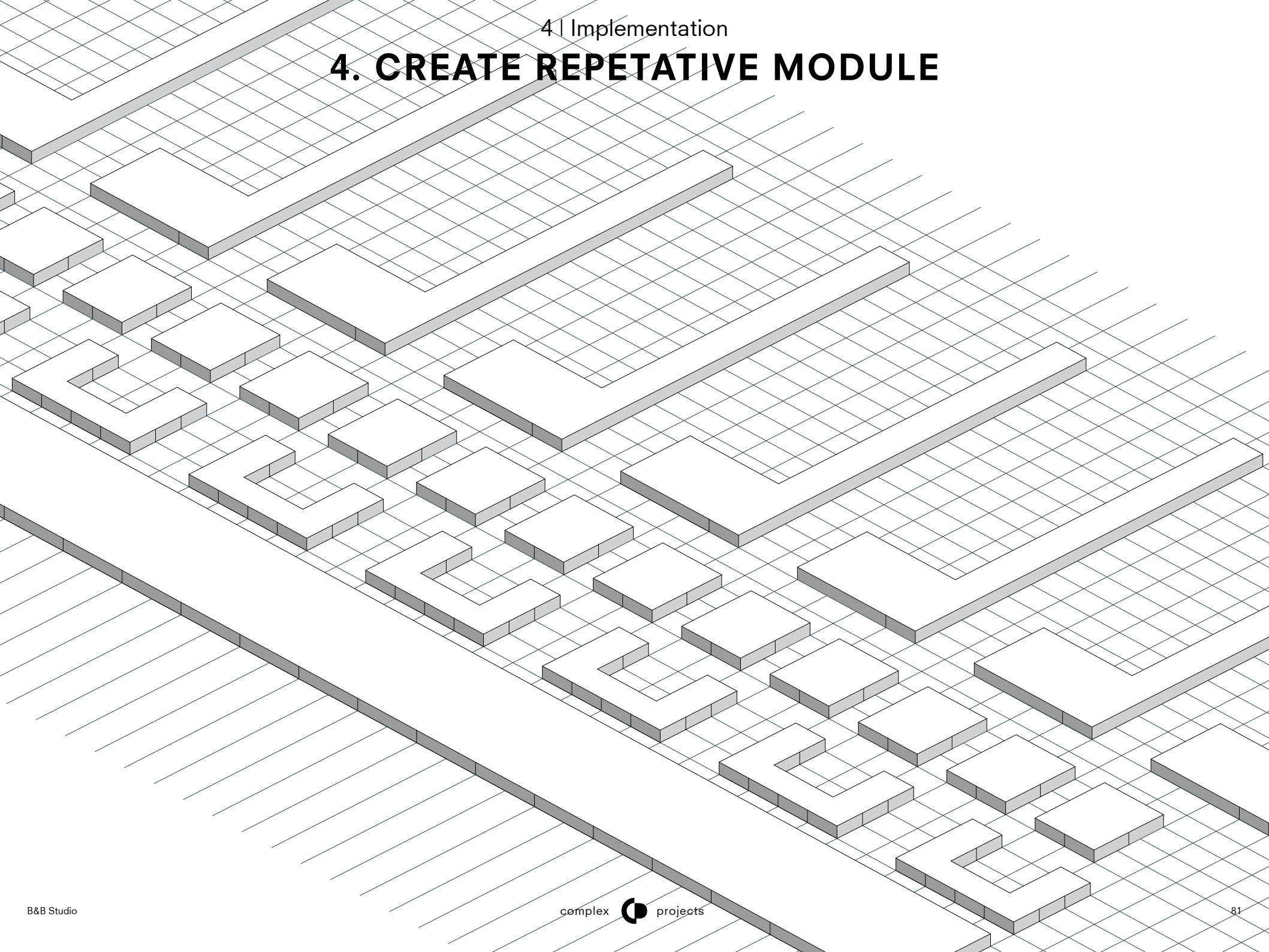


2. ALTER GRID TO FUNCTIONS

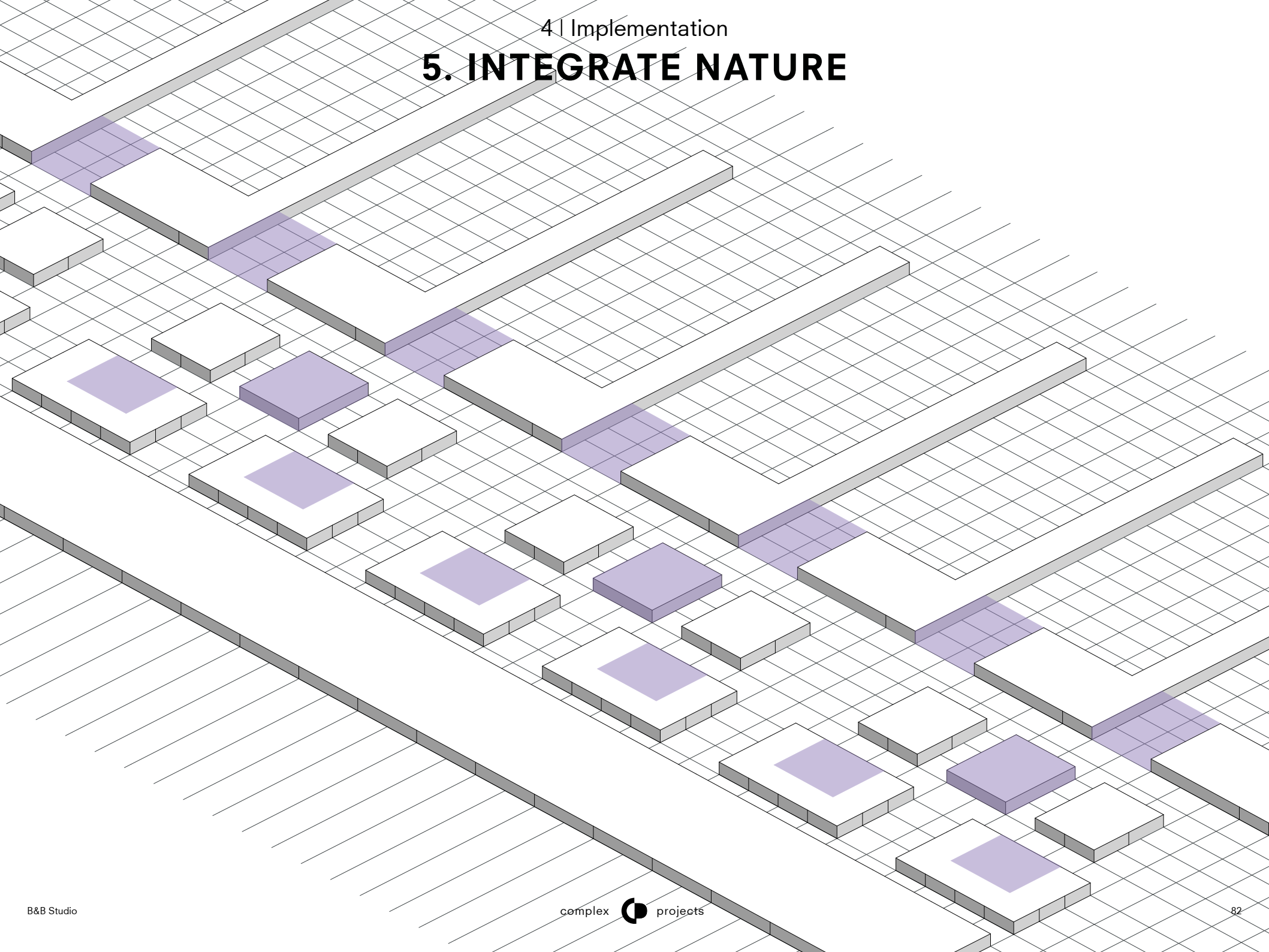
3. CREATE REPETATIVE ELEMENTS



4. CREATE REPETATIVE MODULE

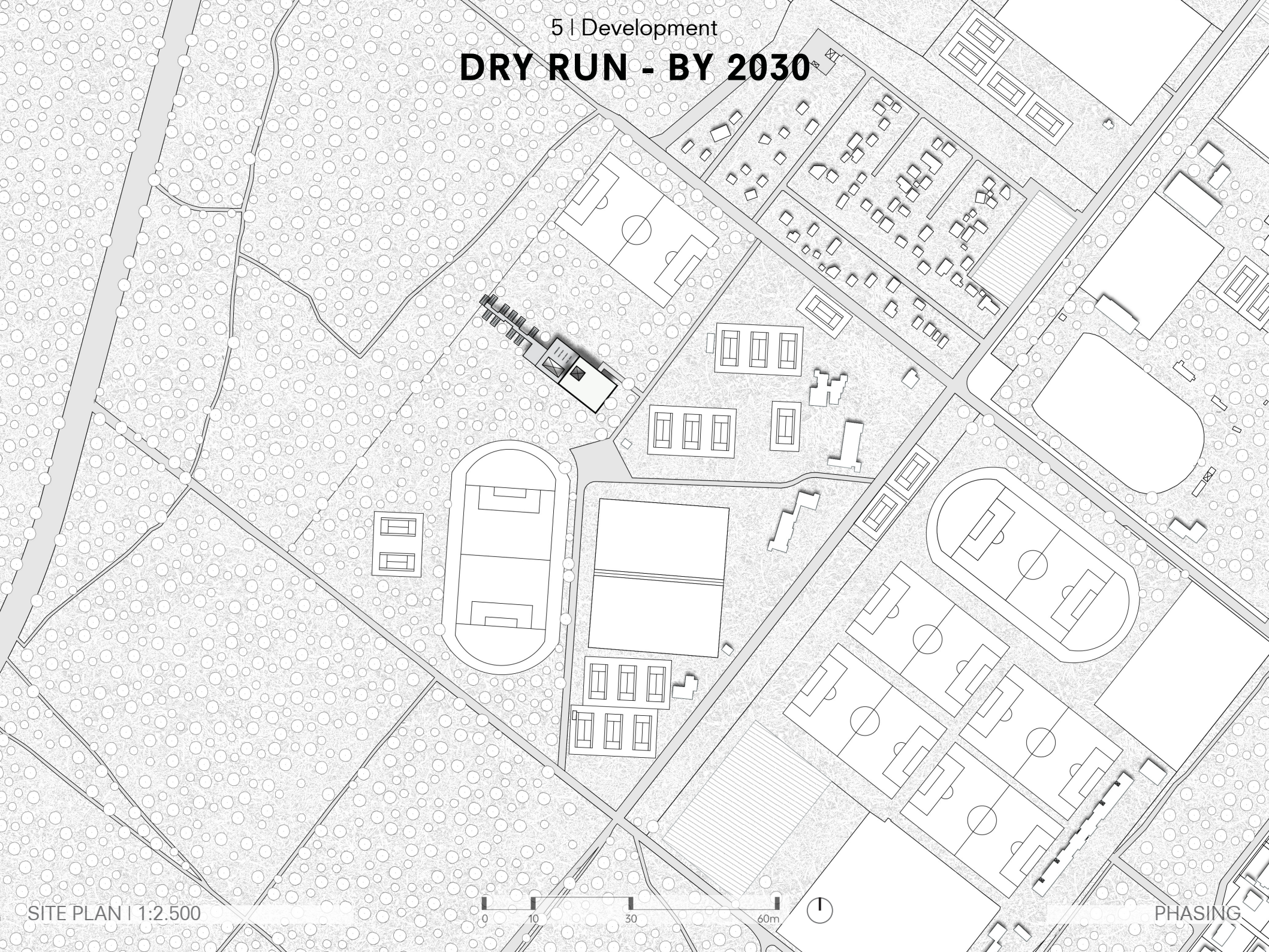


5. INTEGRATE NATURE



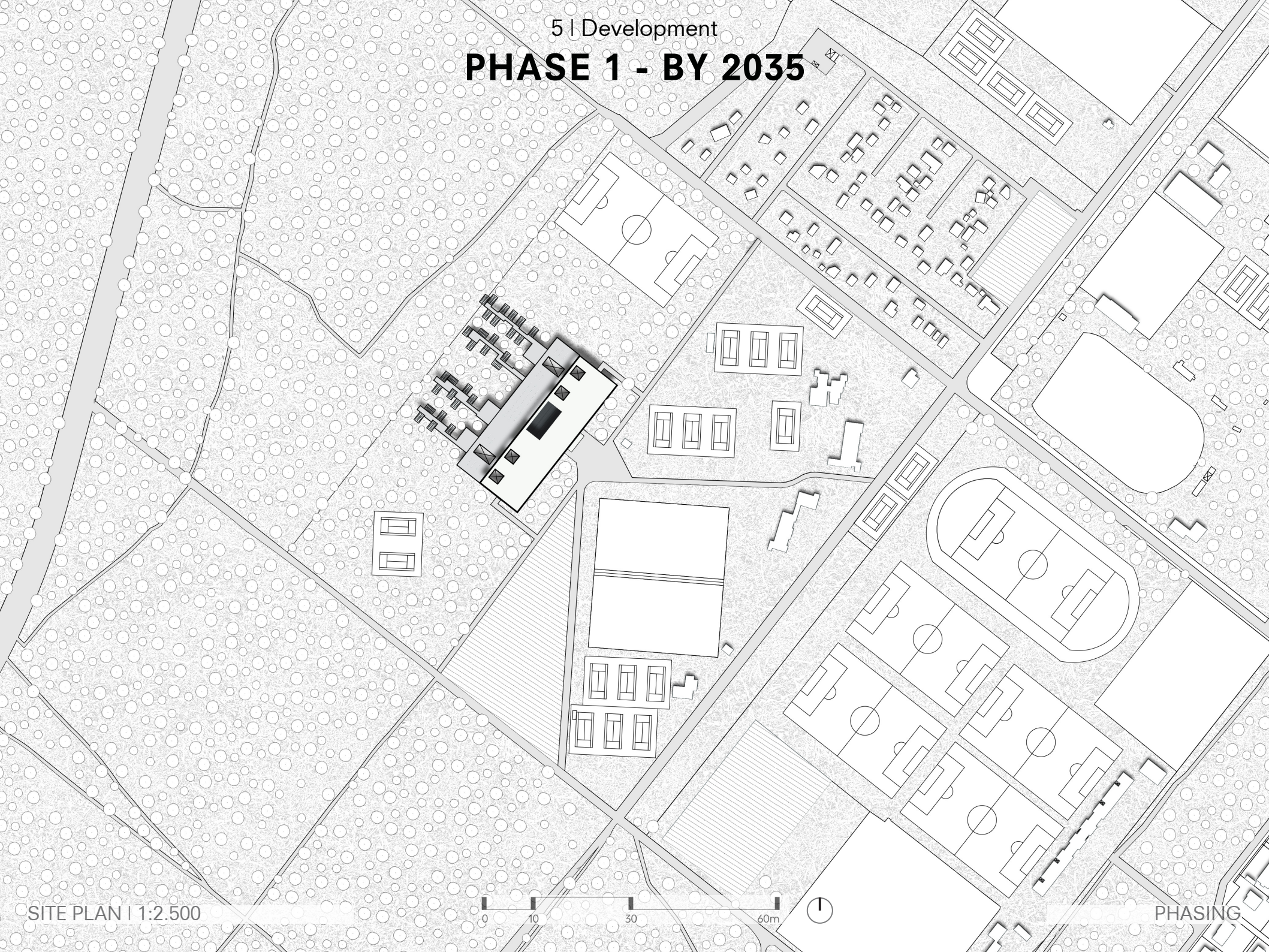
INDEX

DRY RUN - BY 2030



SITE PLAN | 1:2.500

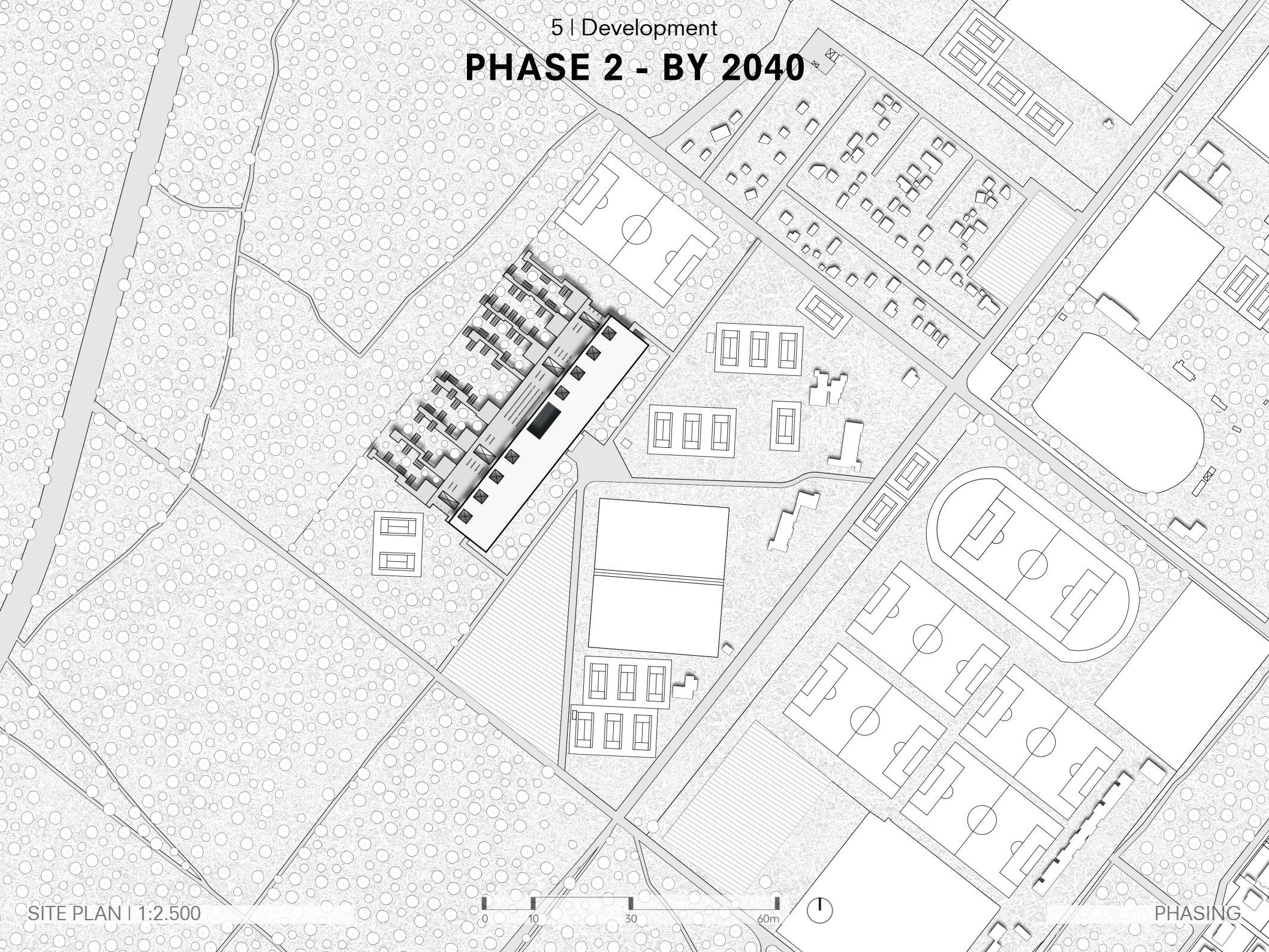
PHASE 1 - BY 2035



SITE PLAN | 1:2.500

PHASING

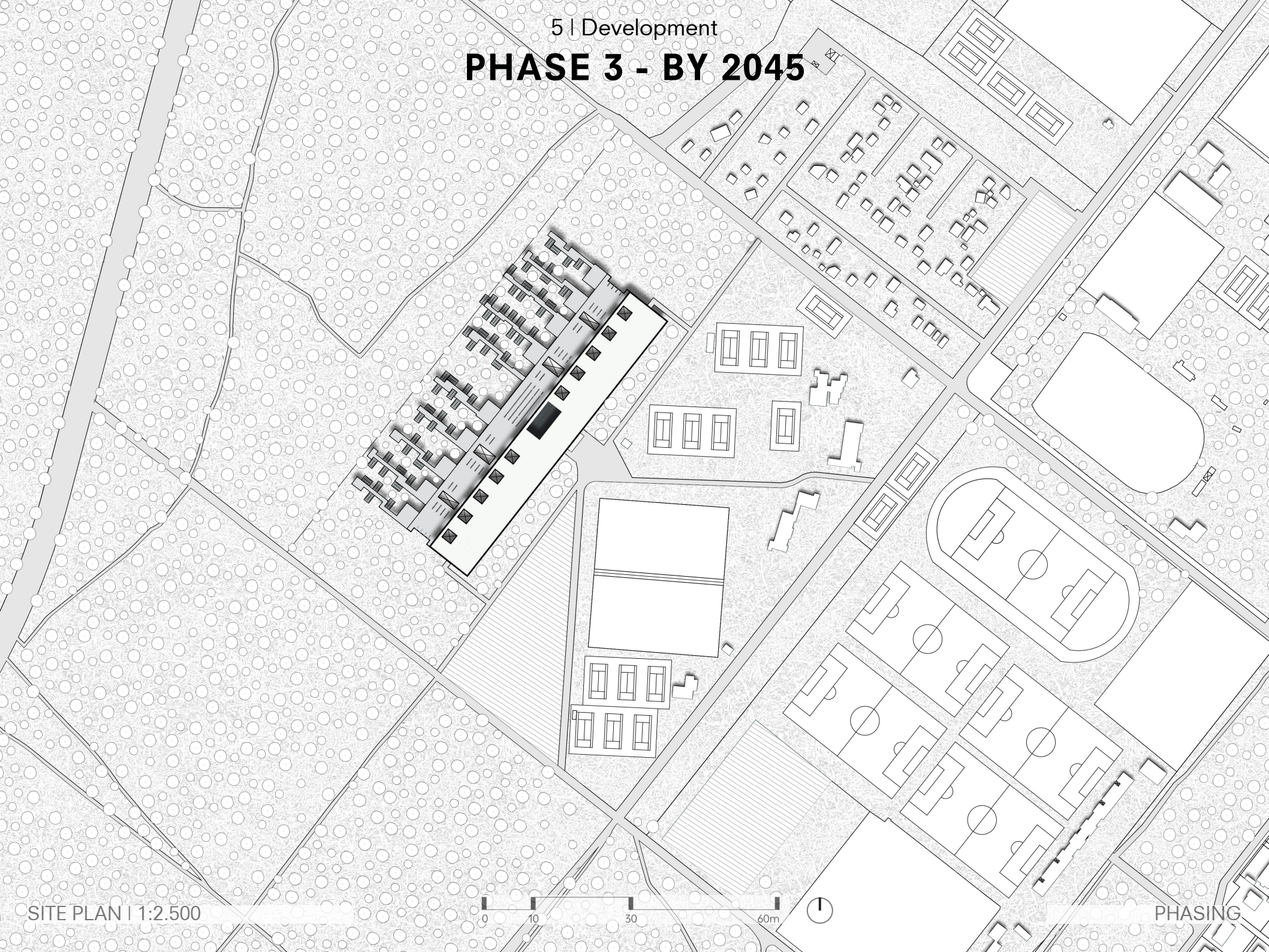
PHASE 2 - BY 2040



SITE PLAN | 1:2.500

PHASING

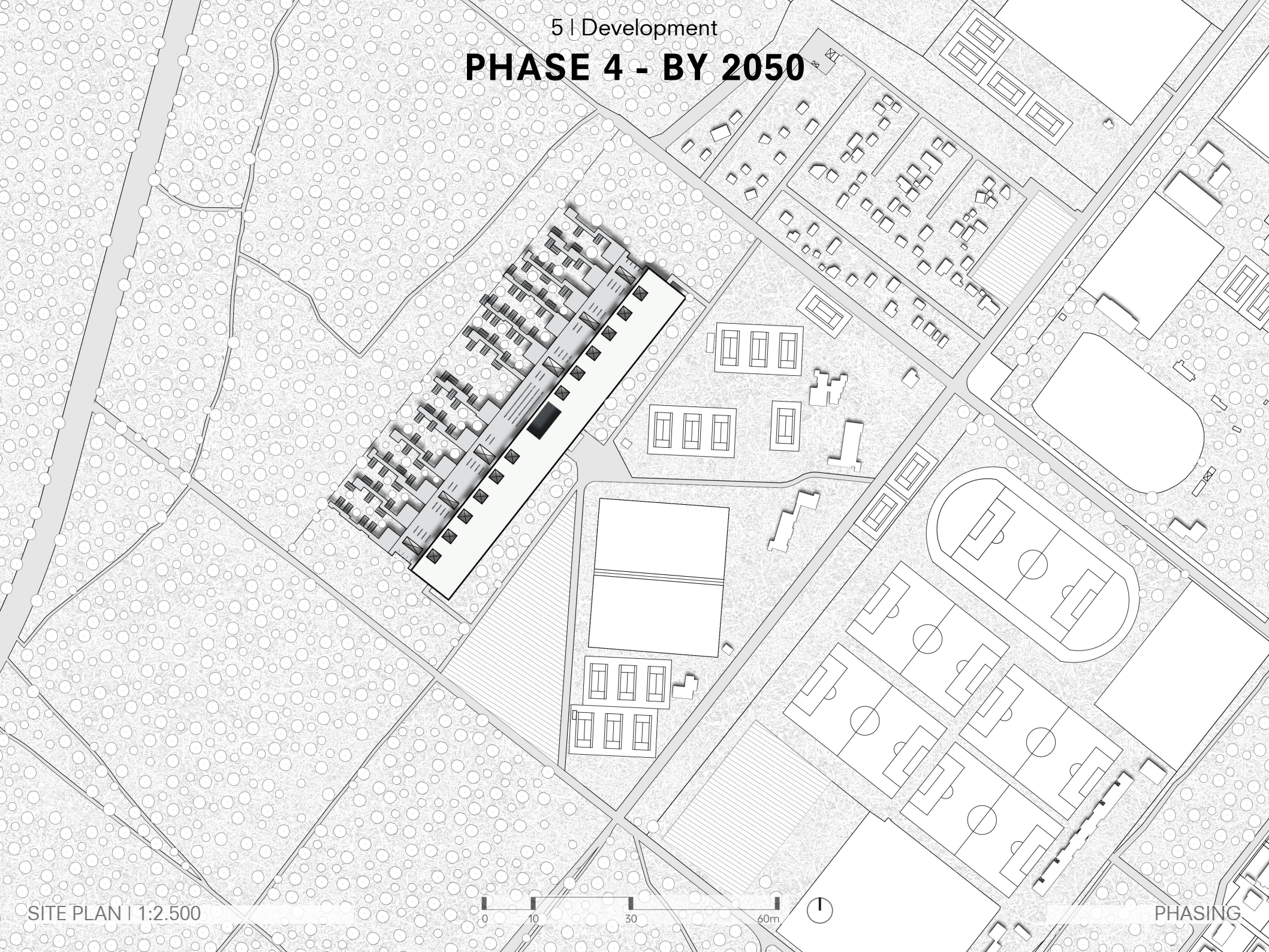
PHASE 3 - BY 2045



SITE PLAN | 1:2.500

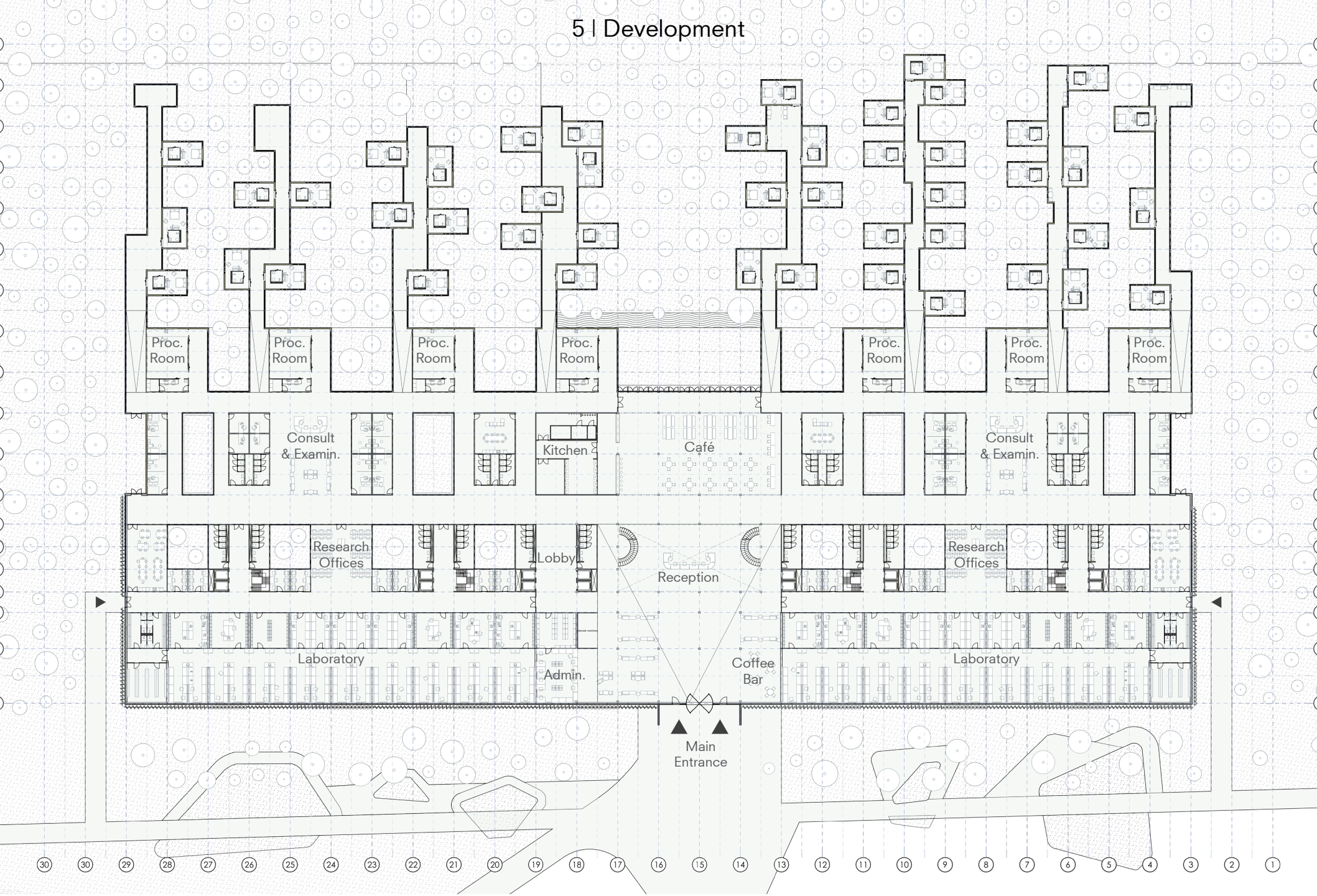
PHASING

PHASE 4 - BY 2050



SITE PLAN | 1:2.500

PHASING



GROUND FLOOR | 1:400

HOSPITAL

VISITOR ROUTE

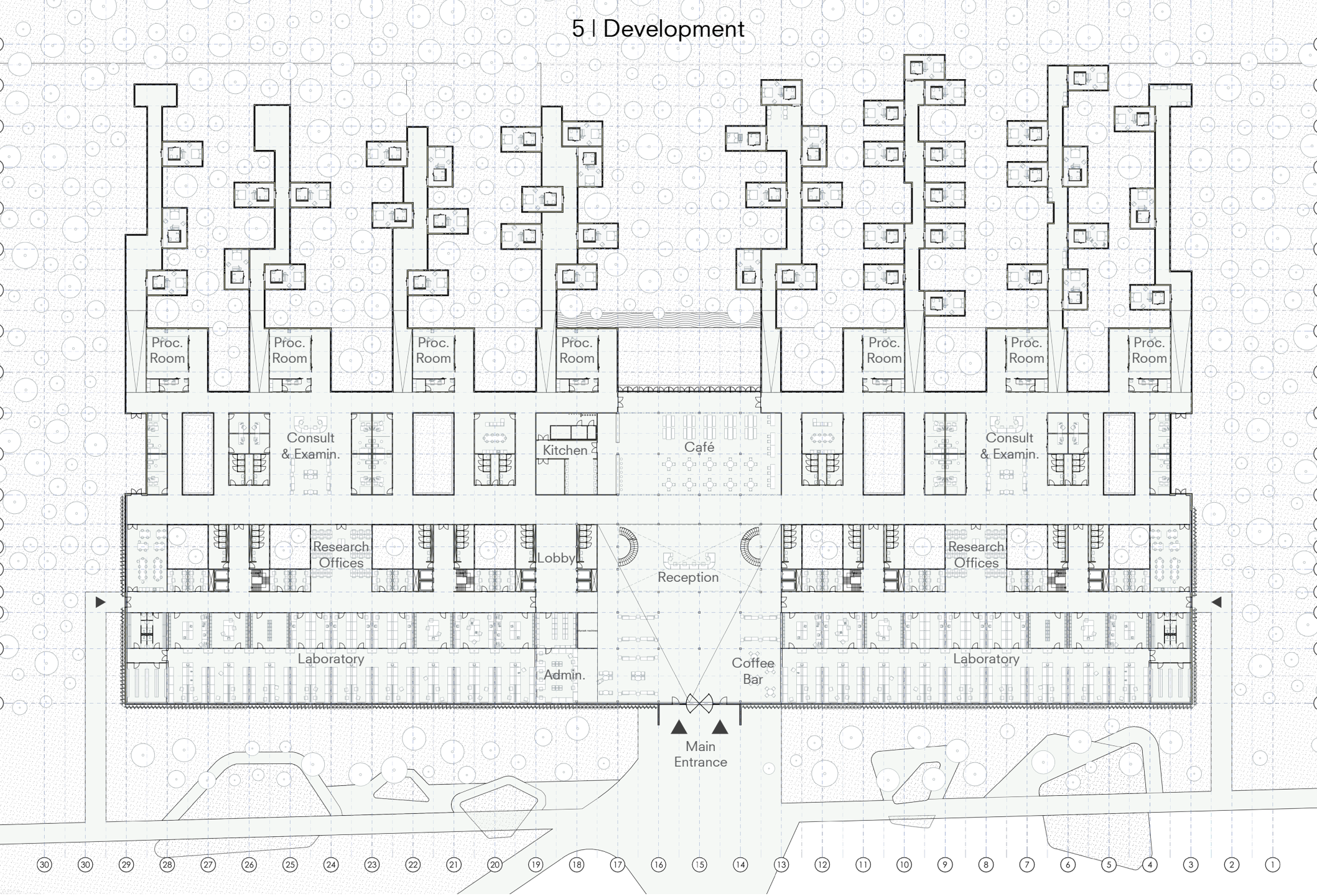
VISITOR ROUTE

VISITOR ROUTE

VISITOR ROUTE


1

VISITOR ROUTE



GROUND FLOOR | 1:400

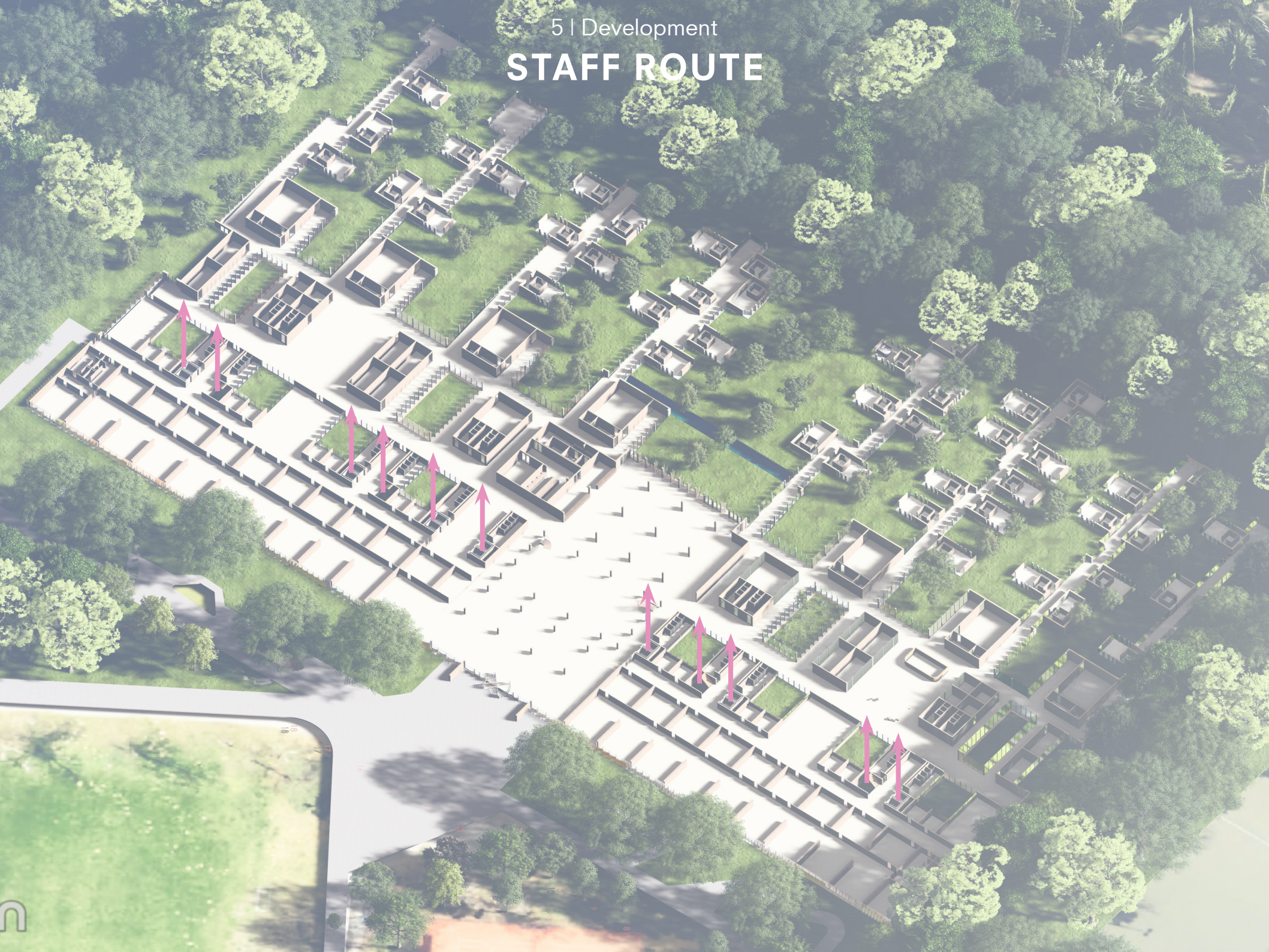
HOSPITAL

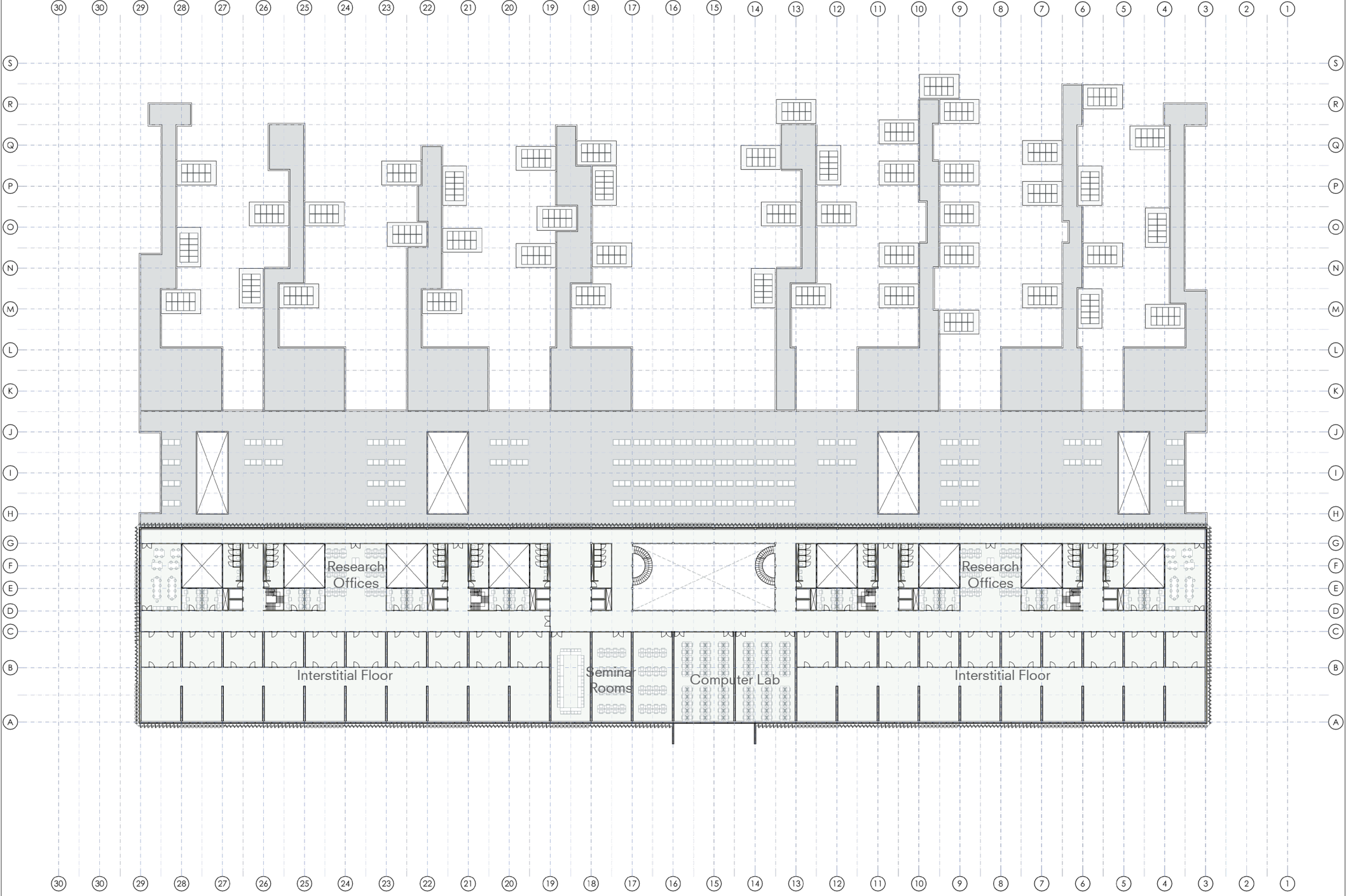
STAFF ROUTE

STAFF ROUTE

STAFF ROUTE

STAFF ROUTE





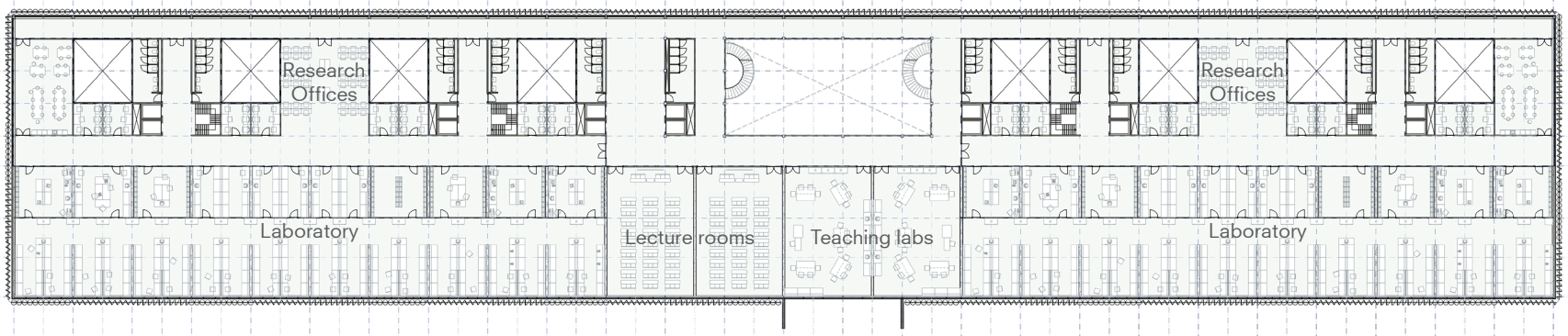
FIRST FLOOR | 1:400

RESEARCH OFFICES

STAFF ROUTE

STAFF ROUTE

STAFF ROUTE



SECOND FLOOR | 1:400

0 10 30 60m

LABORATORY

STAFF ROUTE

ACADEMICS ROUTE

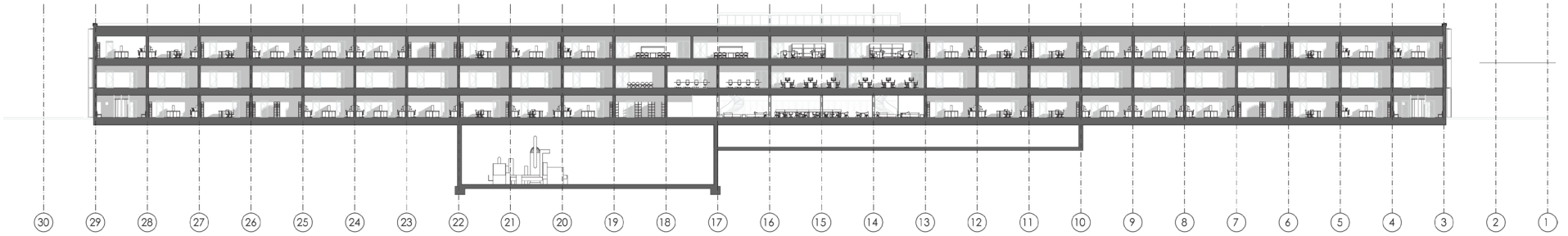
ACADEMICS ROUTE

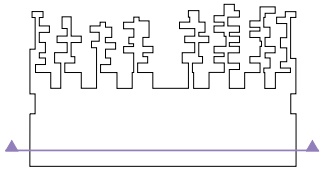
ACADEMICS ROUTE

ACADEMICS ROUTE

ACADEMICS ROUTE

ACADEMICS ROUTE

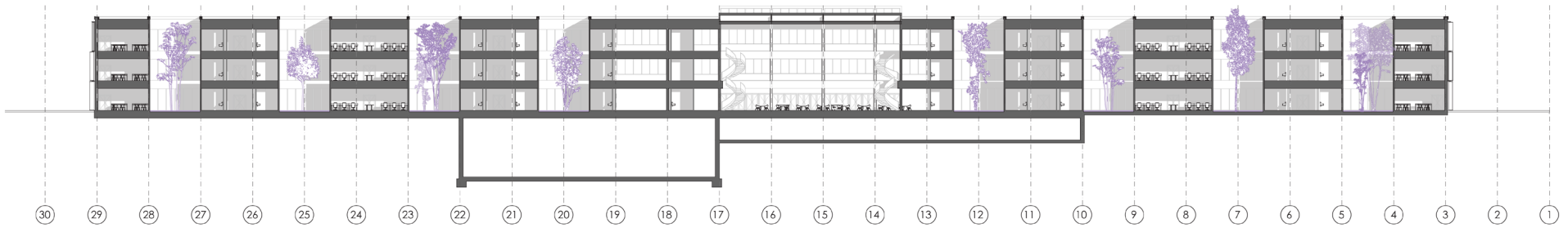


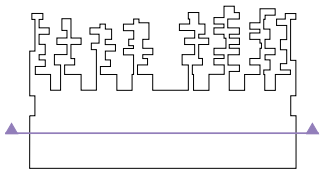


LONGITUDINAL SECTION A - A | 1:400

0 10 30 60m

LABORATORY

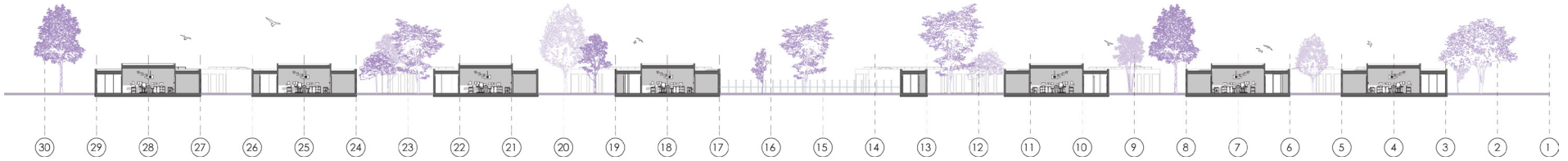


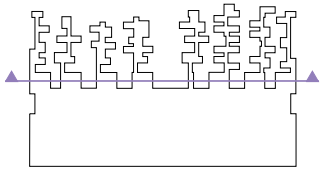


LONGITUDINAL SECTION B - B | 1:400

0 10 30 60m

RESEARCH OFFICES

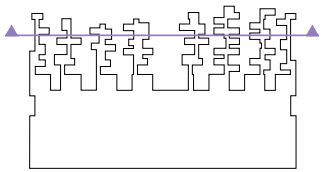




LONGITUDINAL SECTION C - C | 1:400

0 10 30 60m

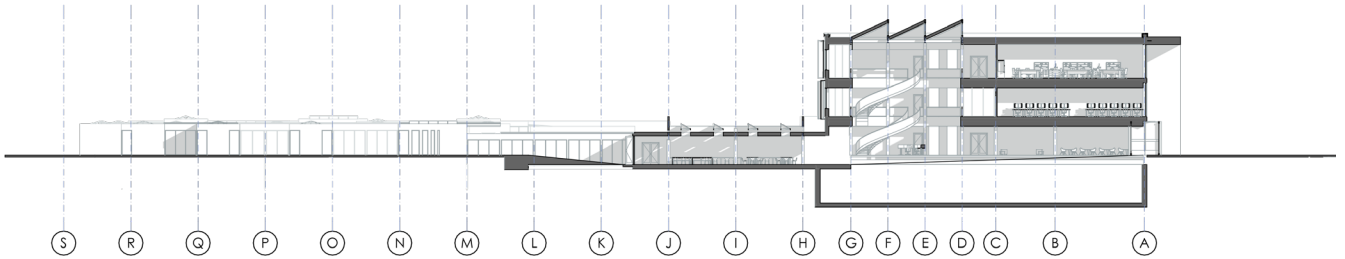
HOSPITAL

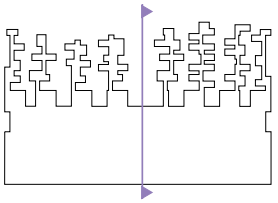


LONGITUDINAL SECTION D - D | 1:400

0 10 30 60m

INCUBATION ROOMS

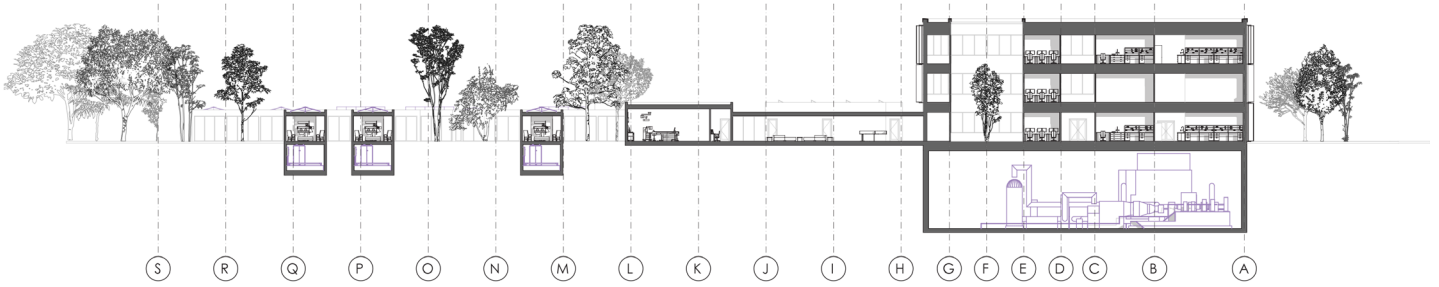


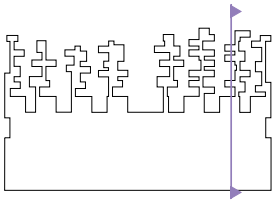


CROSS SECTION 1' - 1' | 1:400

0 10 30 60m

ENTRANCE HALL



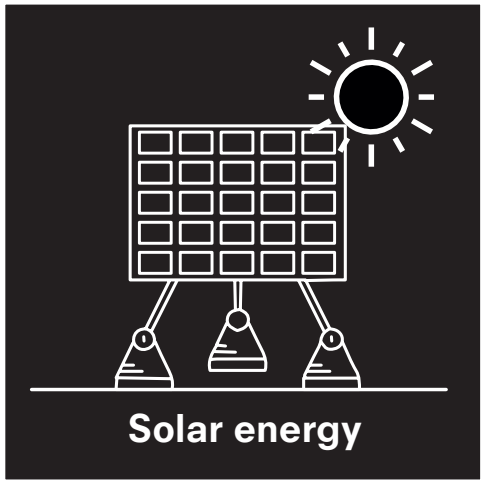


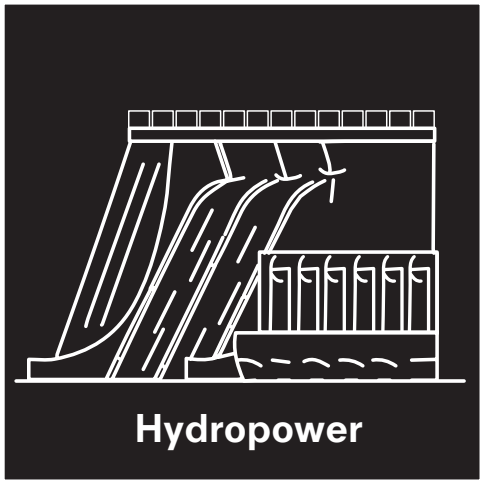
CROSS SECTION 2' - 2' | 1:400

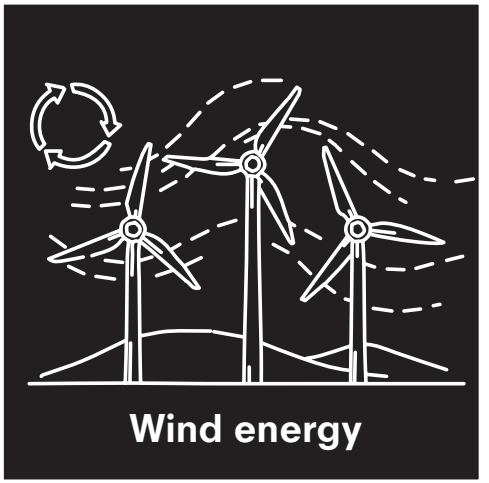
0 10 30 60m

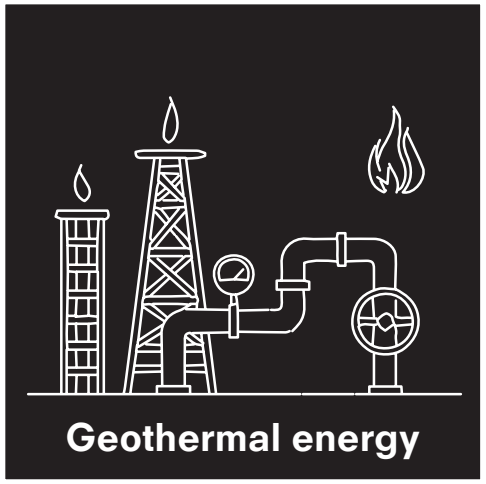
CLIMATE CONCEPT

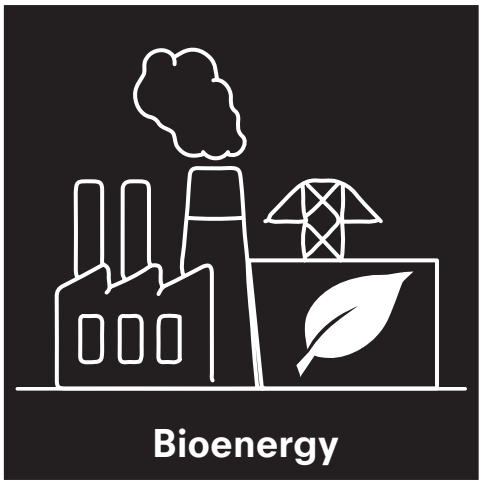
RENEWABLE ENERGY





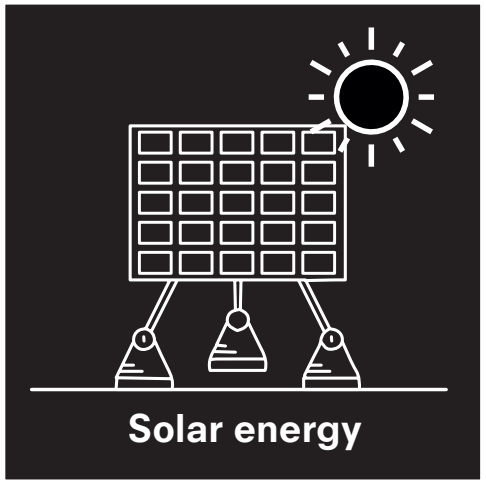


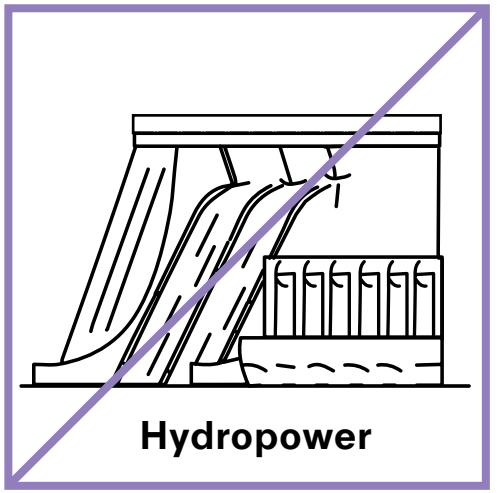


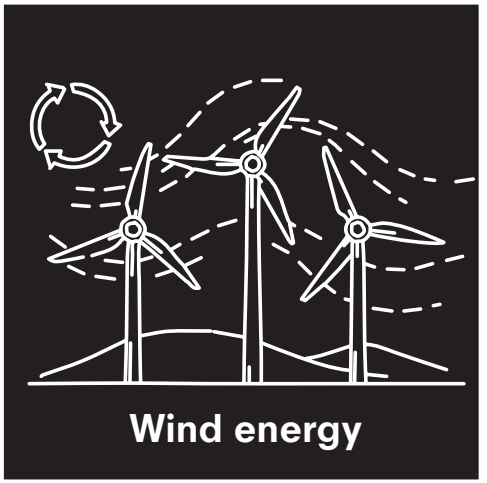


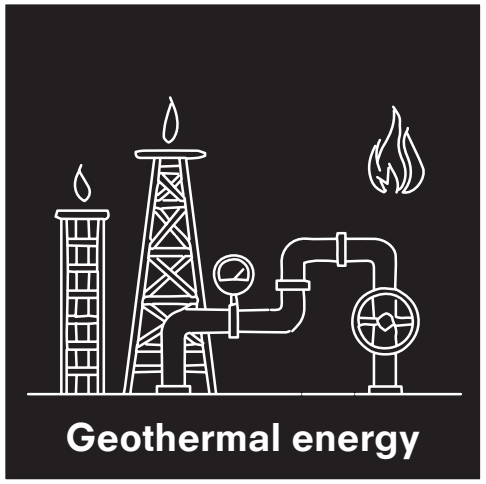
As defined by the United Nations

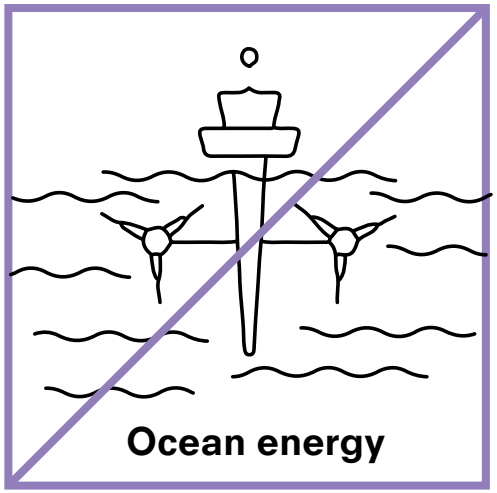
RENEWABLE ENERGY

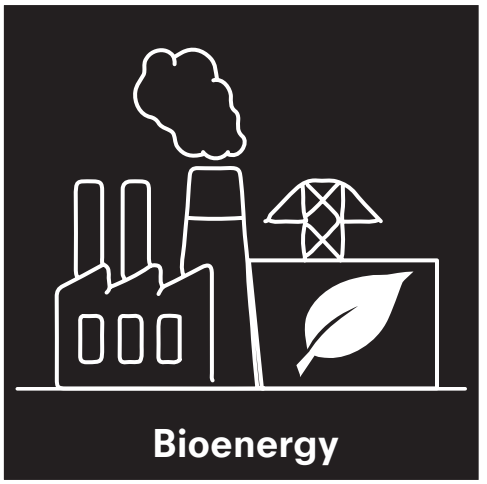






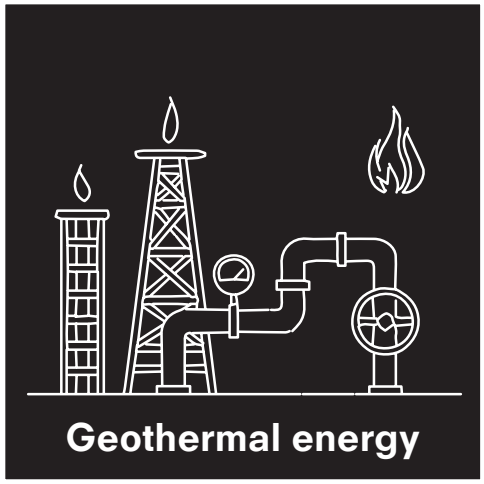






As defined by the United Nations

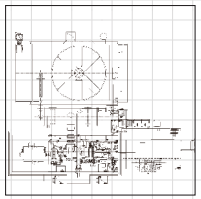
RENEWABLE ENERGY



As defined by the United Nations

GEOTHERMAL UNITS

252 m²

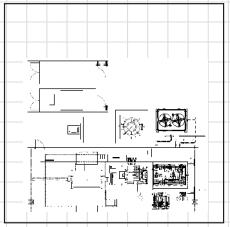


14m

18m

GXP-2C

304 m²

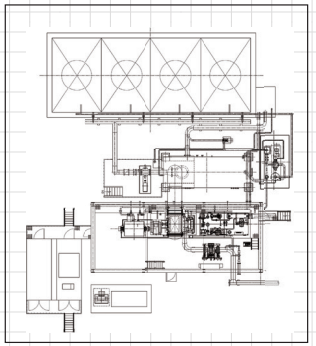


16m

19m

GXP-2B

728 m²

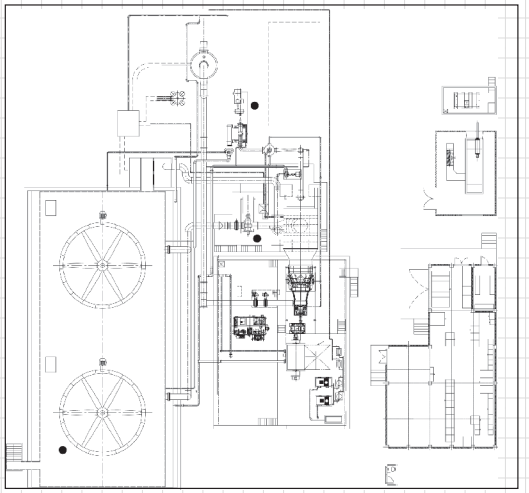


28m

26m

GXP-5C

2400 m²

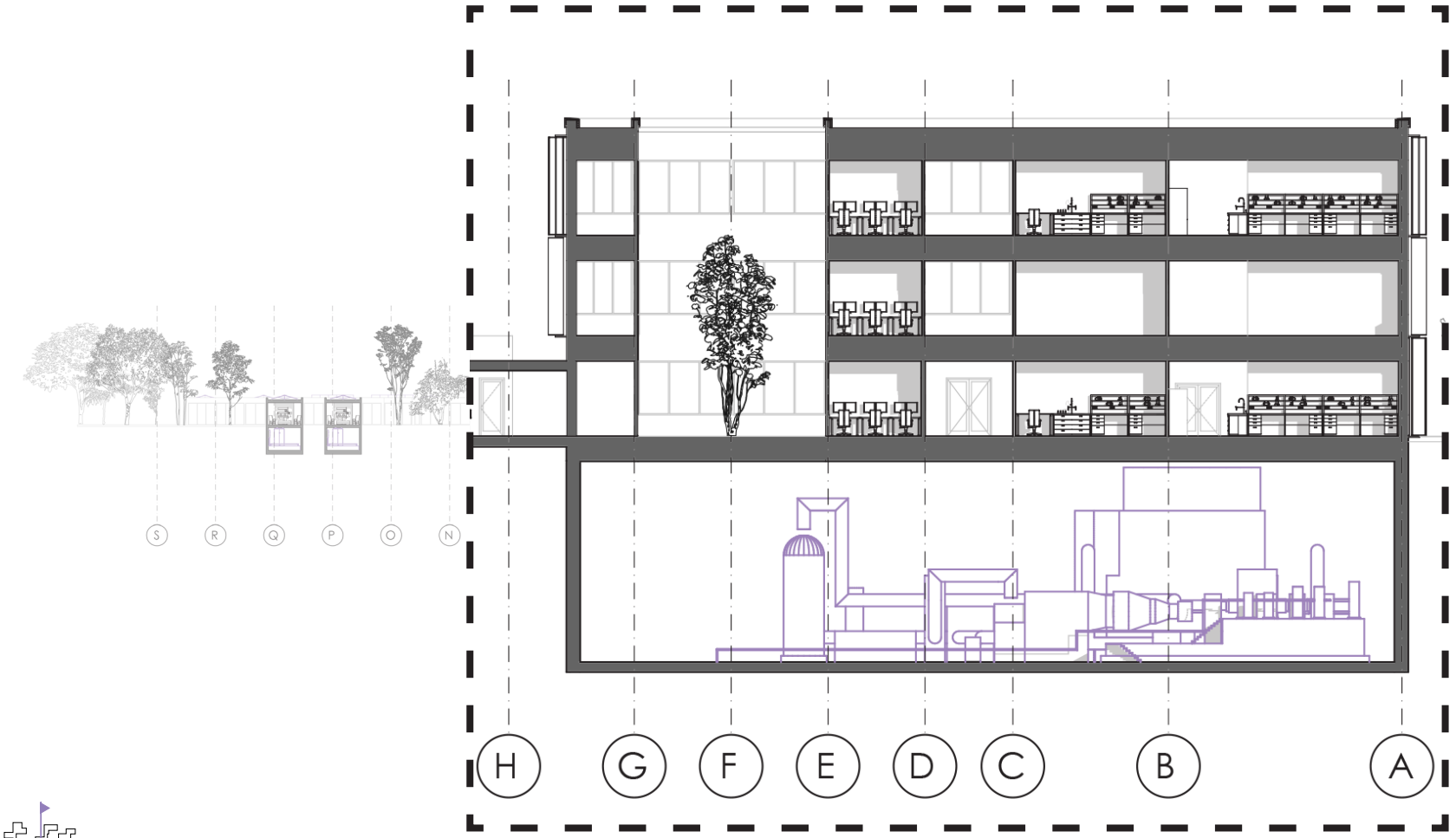


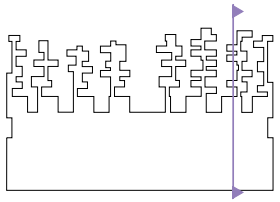
60m

40m

GXP-X

= 1000 households



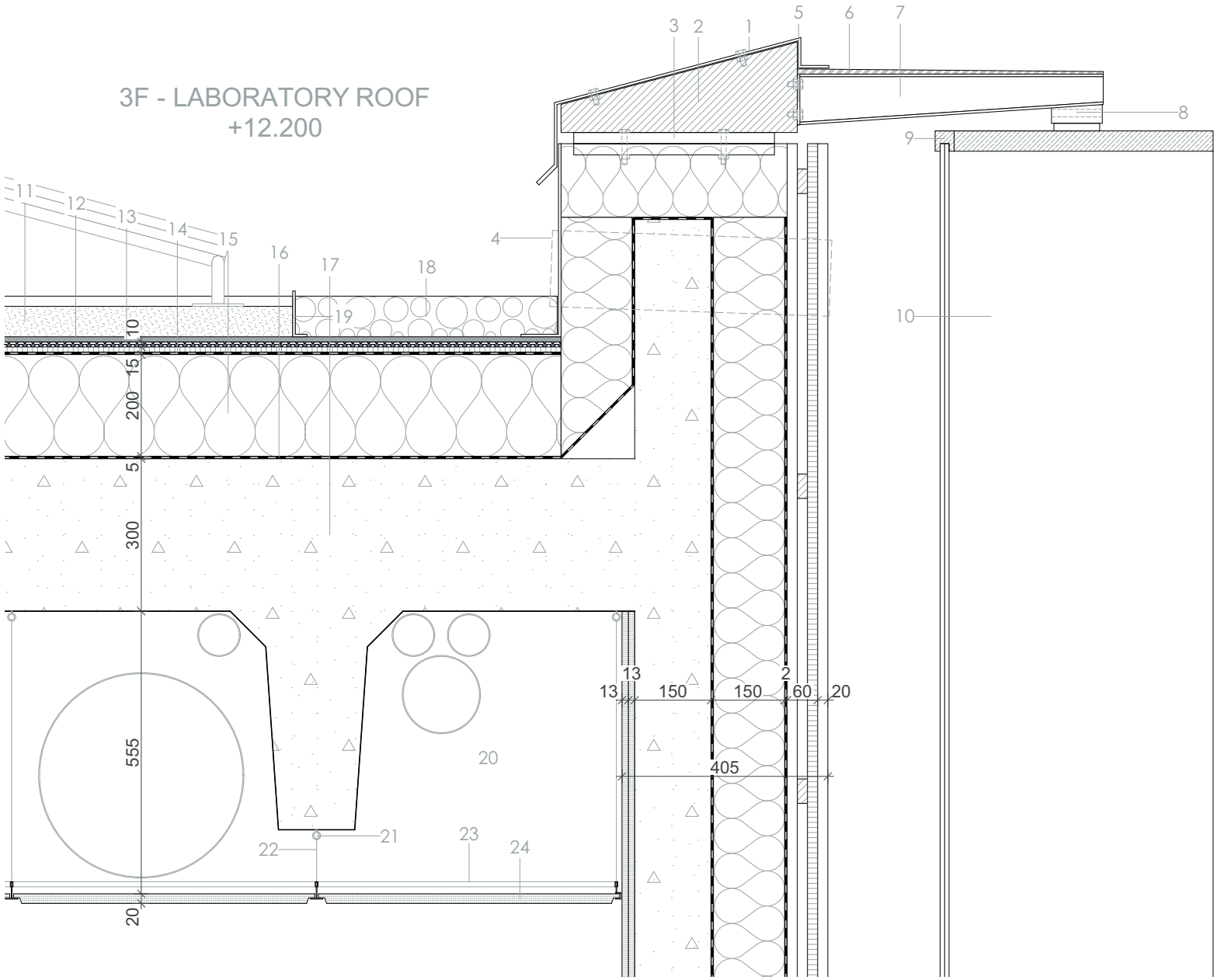


CROSS SECTION 2' - 2' | 1:400

0 10 30 60m

CLIMATE CONCEPT

GLASS LAMELLAS



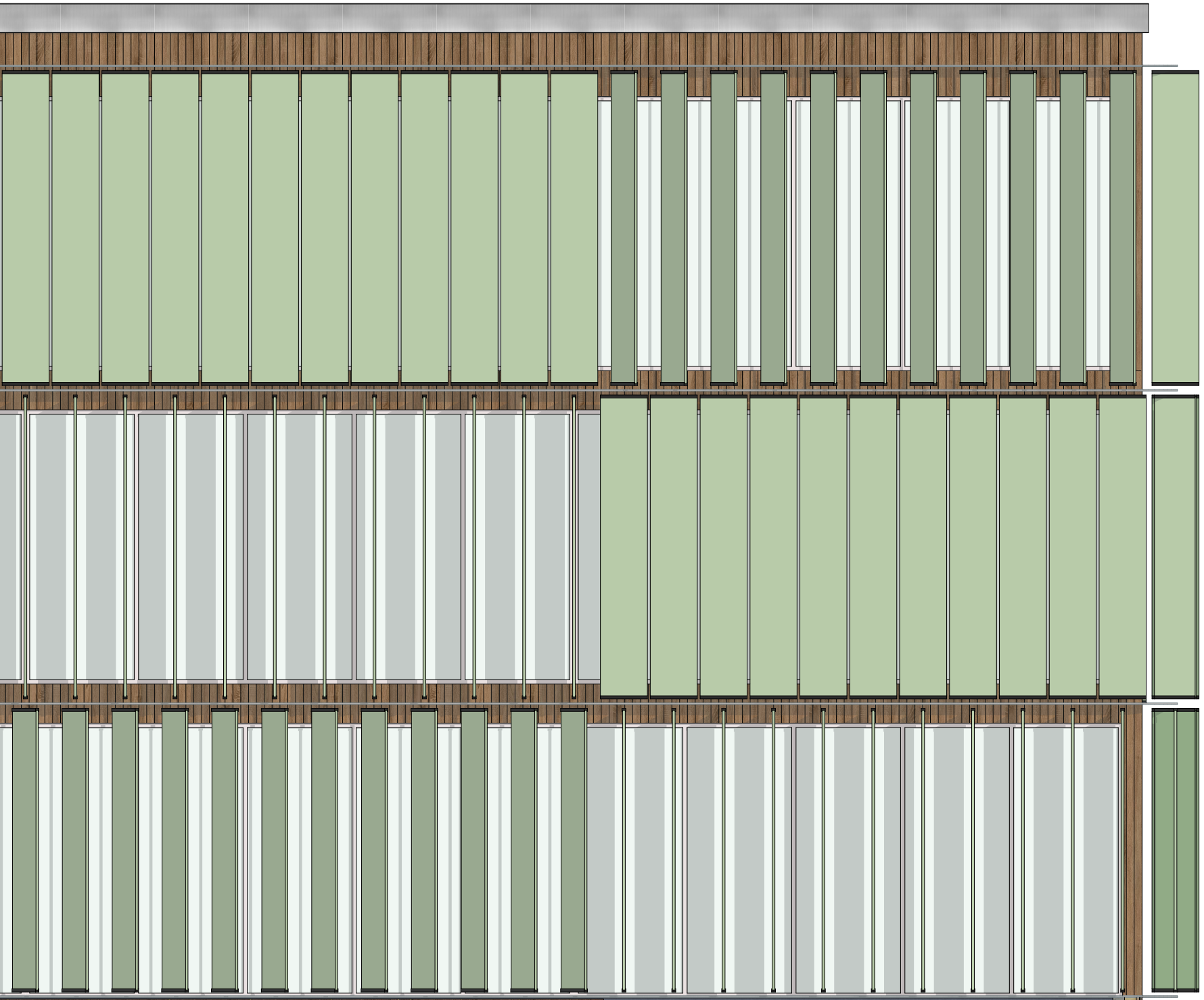
1 Aluminum parapet finishing
2 Tapered rigid insulation
3 Steel stiffener
4 Emergency drain
5 Steel plate
6 Aluminium sheet
7 Steel cantilever
8 Stainless steel glass mounting
9 PVC U-profile
10 Vertically pivoting fritted glass lamellas 50 mm x 3.900 mm

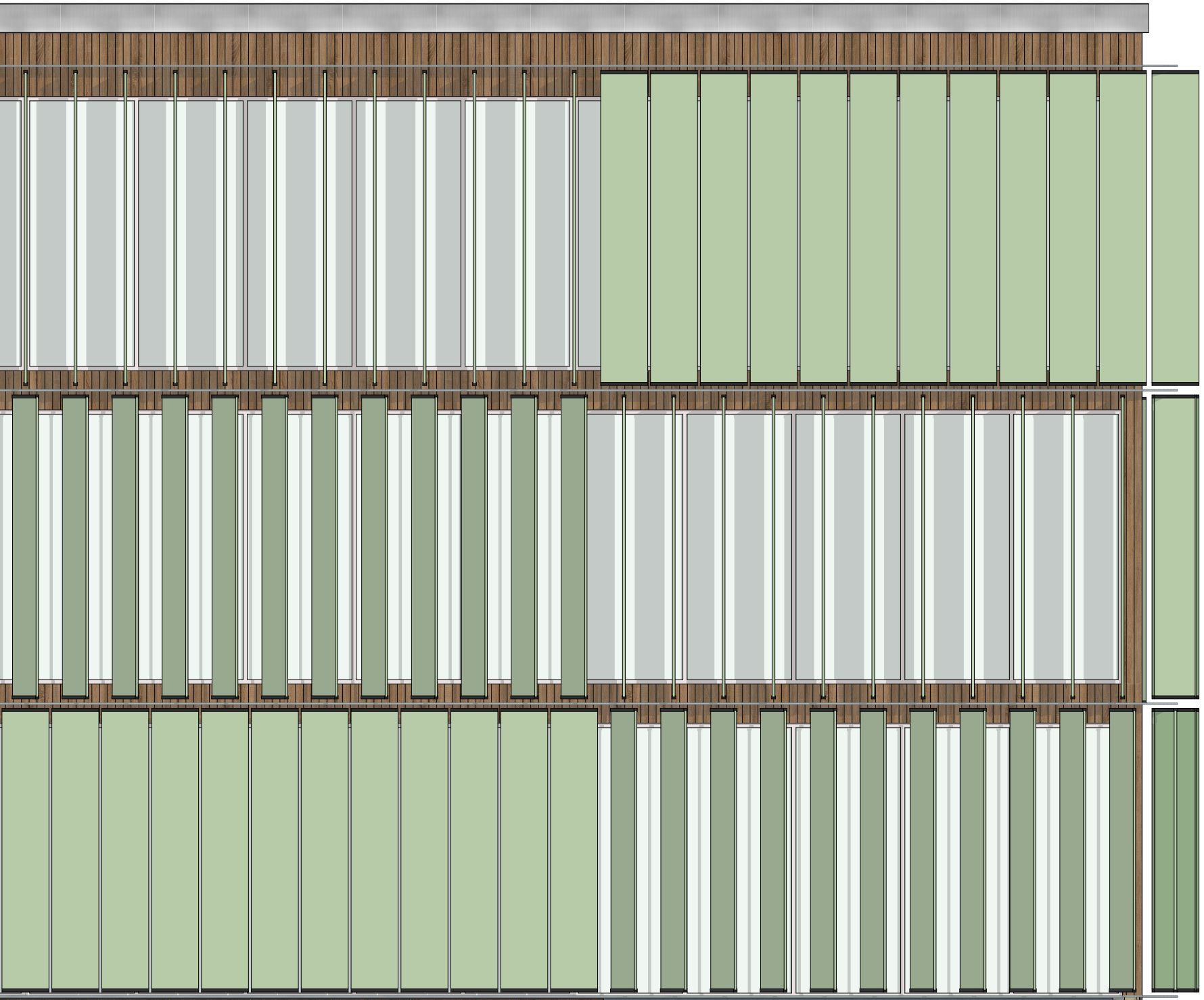
[Automatic system which can be manually overruled]

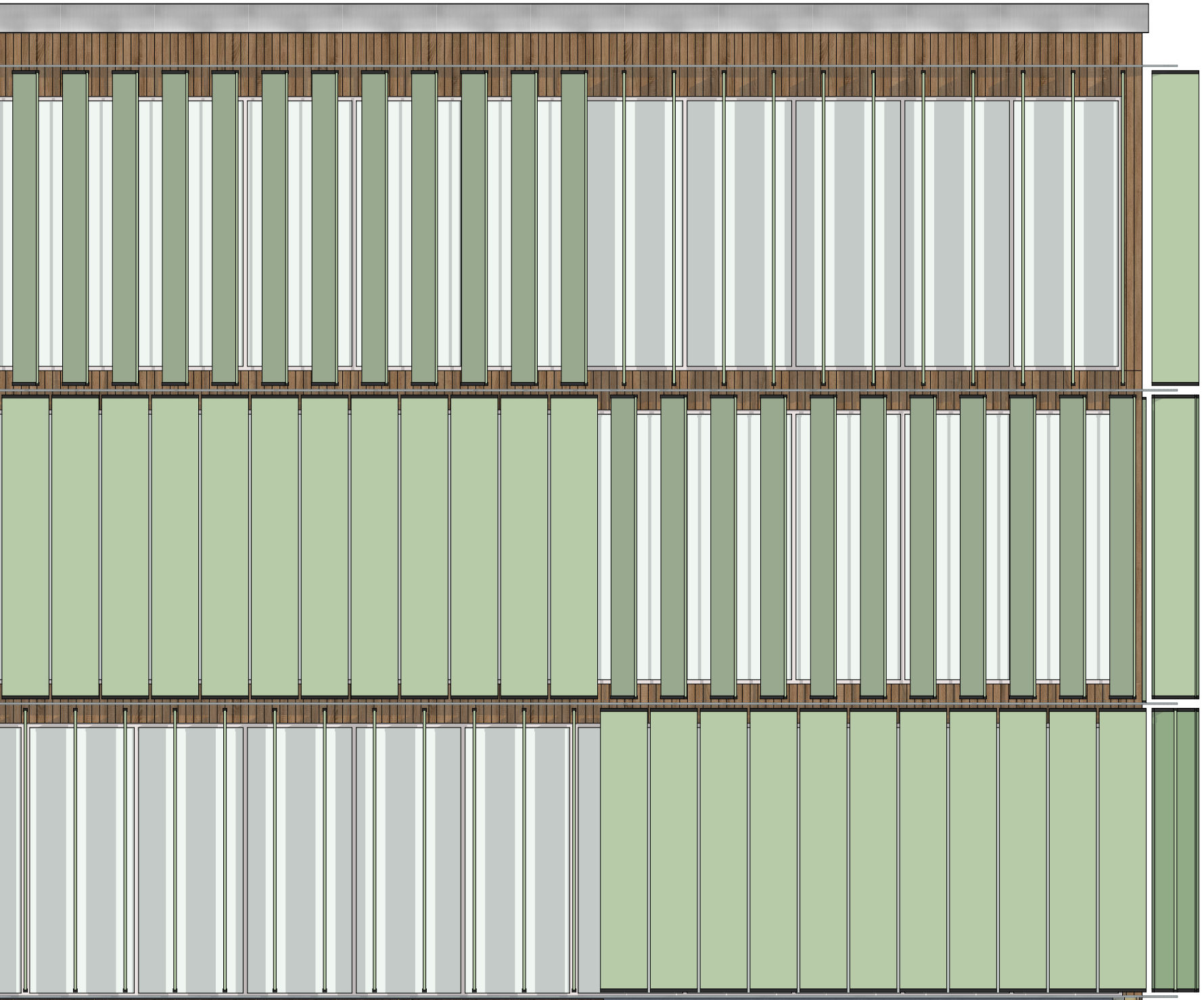
11 Growth medium 60 mm
12 Filter membrane membrane 10 mm
13 Drainage layer/ protective layer/water retention 25 mm
14 Slip sheet (Root barrier / Protection layer) 10 mm
15 Wood fiber Insulation 200 mm
16 Vapour control layer
17 Concrete composite decking floor 300 mm
18 Gravel
19 Separation corner profile
20 Installation space 555 mm
21 Metallic dowel with hook L= 25mm
22 Galvanized steel cable
23 Metal structure with galvanized steel T profile, centre-to-centre 600 mm
24 Suspended ceiling 600 x 600 x 20 mm

DETAIL | 1:5

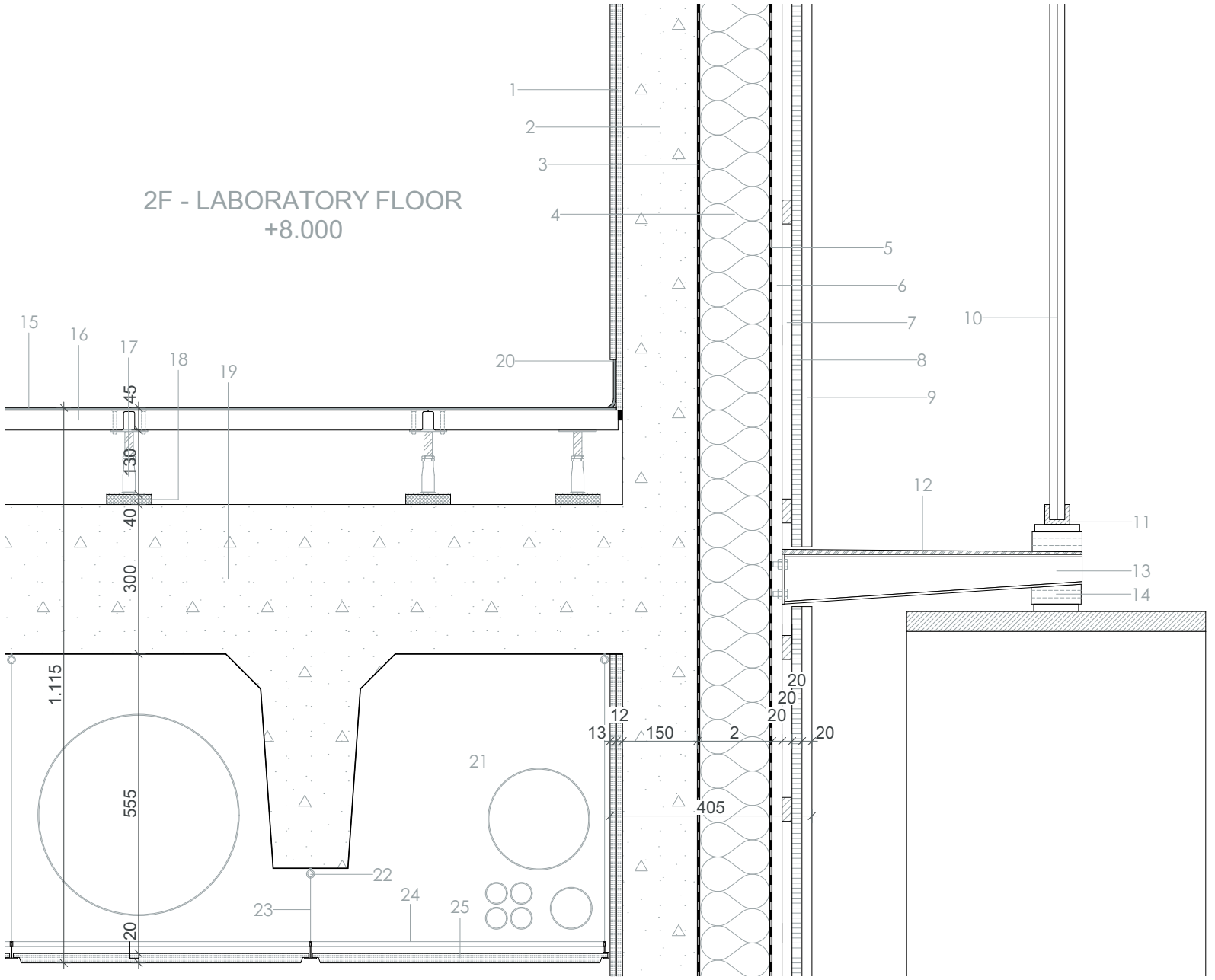
LABORATORY







TECHNICAL FLOOR



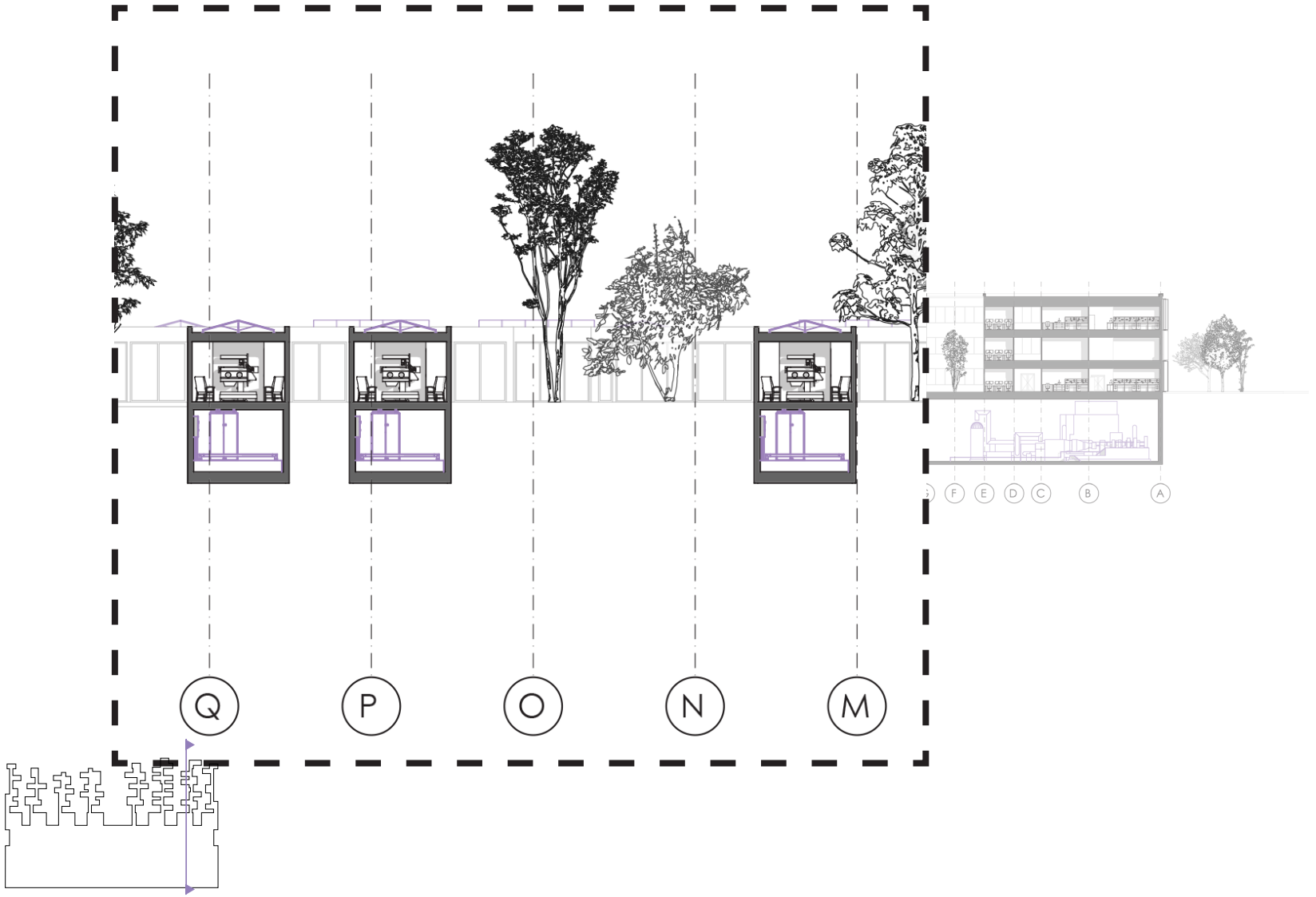
1 2 x Plasterwork 10 mm
2 Concrete 150 mm
3 Vapour control foil
4 Wood fiber insulation 150 mm
5 Waterproofing layer
6 Furring strips 20 mm
7 Battens 20 x 48 mm centre-to-centre 600 mm
8 Vertical timber slats 20 mm
9 Timber slats 20 mm for fixation
10 Vertically pivoting fritted glass lamellas 50 mm x 3.900 mm

[Automatic system which can be manually overruled

11 PVC U-profile
12 Aluminium sheet
13 Steel cantilever
14 Stainless steel glass mounting
15 Vinyl floor covering 3 mm
16 Floor panel 600 x 600 mm
17 Pedestal assembly centre-to-centre 600 mm
18 Contact insulation 20 mm
19 Concrete floor 300 mm
20 Vinyl wall base
21 Installation space 555 mm
22 Metallic dowel with hook L= 25mm
23 Galvanized steel cable
24 Metal structure with galvanized steel T profile, centre-to-centre 600 mm
25 Suspended ceiling 600 x 600 x 20 mm

DETAIL | 1:5

LABORATORY

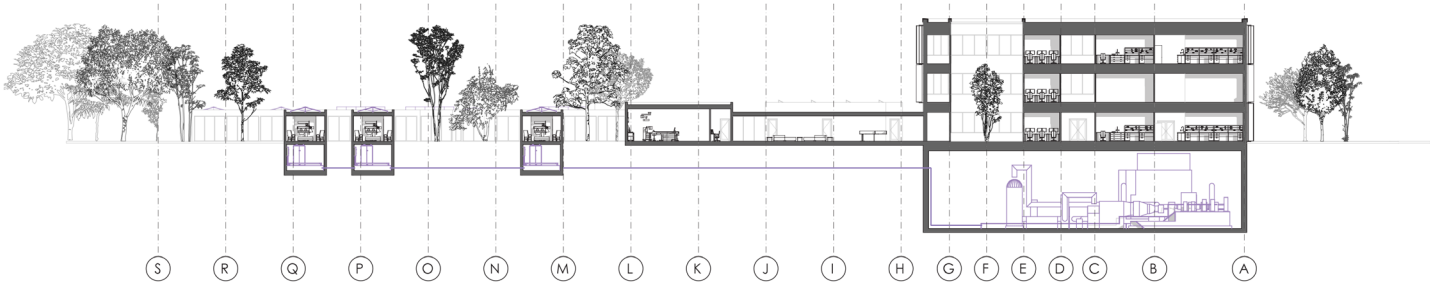


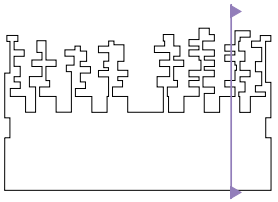
CROSS SECTION 2' - 2' | 1:400

0 10 30 60m

FRAGMENT 1:20

INCUBATION ROOMS





CROSS SECTION 2' - 2' | 1:400

0 10 30 60m

CLIMATE CONCEPT

KEY SPACE

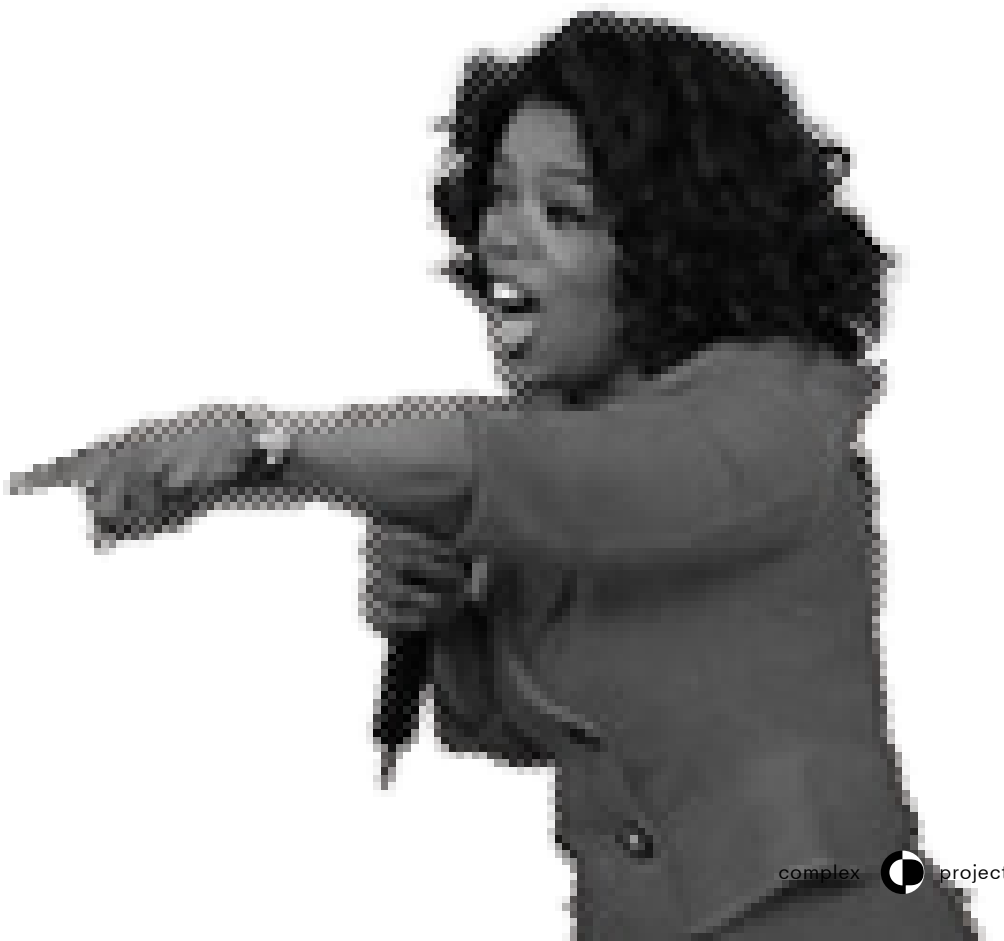
INCUBATION ROOMS

INDEX

How does the architectural design of a medical laboratory building contribute to a safe and social integration of artificial birth processes?

How does the architectural design of a medical laboratory building contribute to a safe and social integration of artificial birth processes?

YOU GET A BABY



YOU GET A BABY

EVERYBODY GETS A BABY


THANK YOU

Extra

USER JOURNEY

HOSPITAL

- Emergency / First Aid
- Medicine/ Utility Room
- Reception Area
- Waiting Room
- Apothecary
- Check-up Area
- Medicine/ Utility Room
- Incubator Rooms
- Operating Rooms

ADMINISTRATION

- Reception Area
- Waiting Area
- Consulting Suites
- (DNA) Sampling
- Examination Room
- Contracting Room

GUEST HOUSE

- Kitchen
- Sanitary Acc.
- Family Space
- Play Room
- Common Room
- Bedroom

LABORATORY

- Couriers Lobby
- Store room
- Controlled Environment
- Pathology
- Imaging & Photography
- Preparation Room
- Genetics Laboratory

RESEARCH OFFICES

- Research Offices
- Write-up Area
- Reference Library

Extra

CALCULATION GEOTHERMAL

Energy use calculation tool		
Area	17.500	m^2
m^3 gas	71,6	m^3/m^2
kWh electricity	162,0	kWh/m^2
Total energy use	**15.365.000**	**kWh**

You have to fill in:

The totall program area of your building

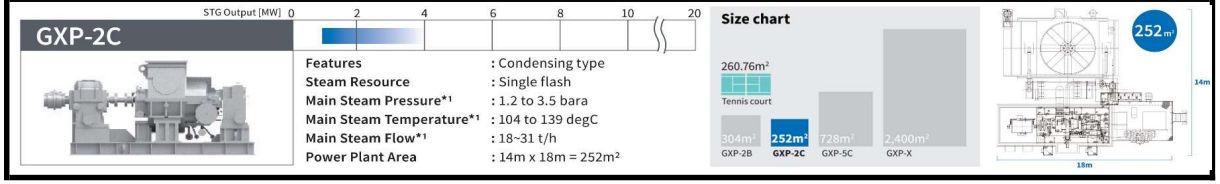
The use of gas per m^2 for your building type, you have to find this on the internet.

The use of electricity per m^2 for your building type, you have to find this on the internet.

Small scale geothermal powerstation choice tool

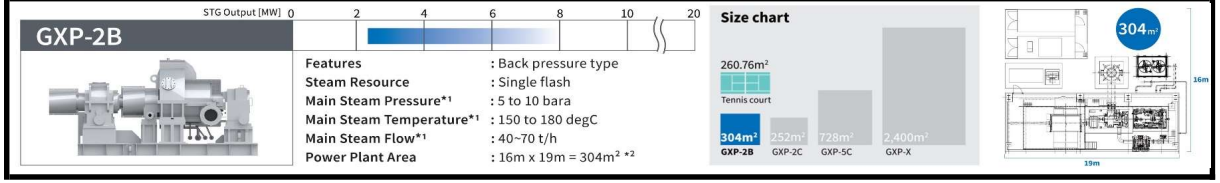
Choose the GXP-2C if your energy need is below:

35.040.000 kWh



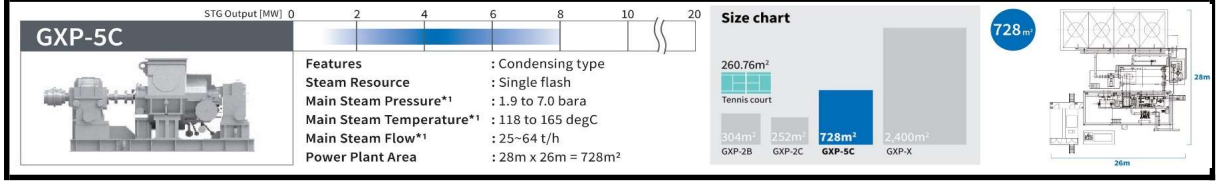
Choose the GXP-2B if your energy need is below:

52.560.000 kWh



Choose the GXP-5C if your energy need is below:

70.080.000 kWh



Choose the GXP-X if your energy need is below:

175.200.000 kWh