

building 20.40

material biographies:

an emotive exploration of material's identity

building 20.40

material biographies:

an emotive exploration of material's identity

editors:
Peter van Assche
Katja Hogenboom
Hanna Hoss

with contributions of:
Aline Lang
Amélie Giraud
Annabelle Ebener
Annika Brendle
Erdogan Ilker Incirci
Gordon Buxton
Hanna Bederke
Joachim Kausch
Ines Barrinso
Jasmine Parraga
Karla Jukić
Kevin Schulz
Marta Moro
Mirjam Dürr
Nicolas Astudillo
Rebecca Steinbach
Simone Uschold

editors:
Peter van Assche
Katja Hogenboom
Hanna Hoss

with contributions of:
Aline Lang
Amélie Giraud
Annabelle Ebener
Annika Brendle

building 20.40

material biographies:

an emotive exploration of material's identity

building 20.40

material biographies:

an emotive exploration of material's identity

editors:
Peter van Assche
Katja Hogenboom
Hanna Hoss

with contributions of:
Aline Lang
Amélie Giraud
Annabelle Ebener
Annika Brendle
Erdogan Ilker Incirci
Gordon Buxton
Hanna Bederke
Joachim Kausch
Ines Barrinso
Jasmine Parraga
Karla Jukić
Kevin Schulz
Marta Moro
Mirjam Dürr
Nicolas Astudillo
Rebecca Steinbach
Simone Uschold

editors:
Peter van Assche
Katja Hogenboom
Hanna Hoss

with contributions of:
Aline Lang
Amélie Giraud
Annabelle Ebener

building 20.40

material biographies:

an emotive exploration of material's identity

editors:

Peter van Assche
Katja Hogenboom
Hanna Hoss

with contributions of:

Aline Lang
Amélie Giraud
Annabelle Ebener
Annika Brendle
Erdogan Ilker Incirci
Gordon Buxton
Hanna Bederke
Joachim Kausch
Ines Barrinso
Jasmine Parraga
Karla Jukić
Kevin Schulz
Marta Moro
Mirjam Dürr
Nicolas Astudillo
Rebecca Steinbach
Simone Uschold

introduction

I am the shelter, the dorm and the kitchen of architecture students

Come visit me during the day, when the students are tired

*08:00 footsteps moving towards my doors
12:00 they run to the mensa for its pastas
15:00 are they trying to intoxicate me with all this glue smell?
18:00 my windows are cracking from all those discussions*

come visit me at night, when the students are awake

*19:00 I hear the printer in full force
20:00 the coffee aroma fills my workshops
22:00 they go party in my courtyard and my bricks are shaking
00:00 people start to leave me to return hours later*

It's my routine.

This is a story of materials written within the walls of the Karlsruhe Institute of Technology, by seventeen students who explore the architecture faculty.

The aim of the MATERIAL BIOGRAPHIES – an Emotive Exploration of Materials Identity - seminar is to reveal the invisible sides of the building by focusing on chosen elements and reorder them in unexpected ways.

*From my cables to my furnitures
from the papers to the light and shadows,
from my mass to the time spent within me
from my reuse potential to the sounds and light*

*They teared me apart to show my identities
My materials, their potentials and what they host
My past, my present and my future
Everything takes form in this book.*

Come visit me at any time

contents

WHAT A MASS - Hanna Bederke, Kevin Schulz

UNFOLD - Simone Uschold, Annika Brendle

KITKEA - Amélie Giraud, Aline Lang

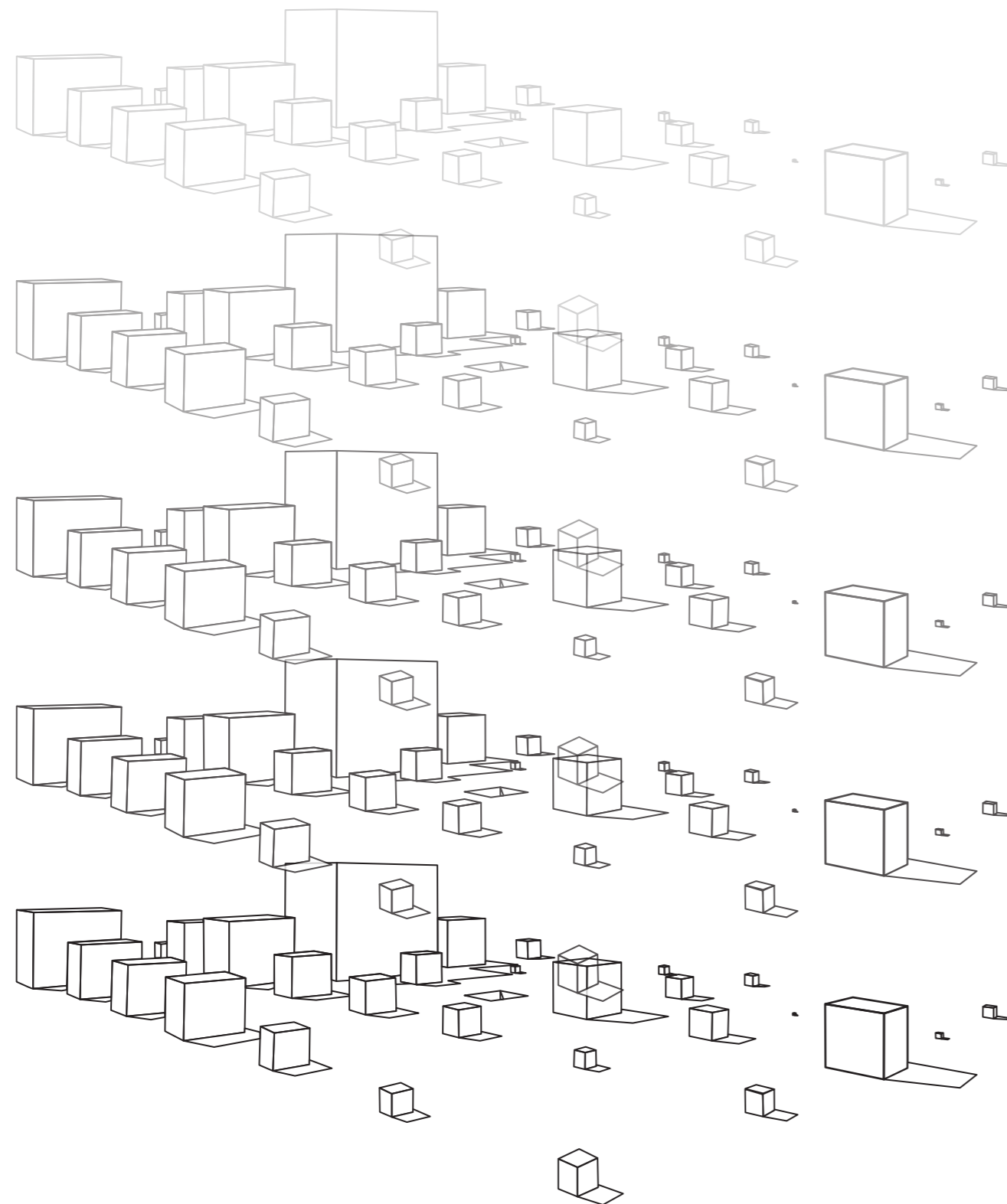
PULSE 20.40 - Annabelle Ebener, Gordon Buxton, Nicolas Astudillo

INTO THE LIGHT - Joachim Kausch, Erdogan Ilker Incirci

THE RIGHT STUFF - Marta Moro, Ines Barrinso

GOOD VIBRATIONS - Jasmine Parraga, Karla Jukić

CAN'T STOP THE FEELING - Mirjam Dürr, Rebecca Steinbach



WHAT A MASS

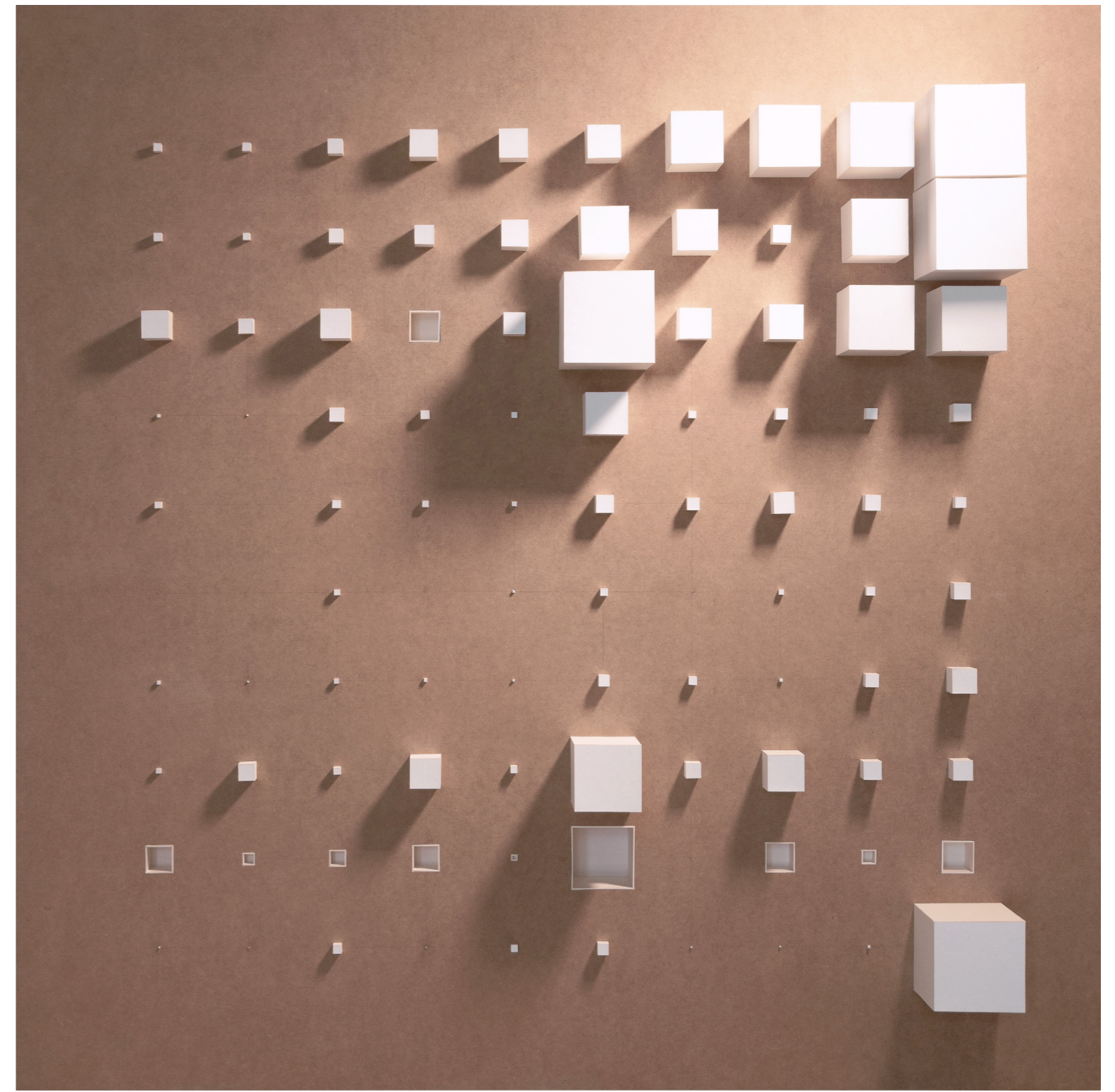
What is the weight of the building materials of a building? And: what influence do building materials have on the environment, the atmosphere and our ecosystem?

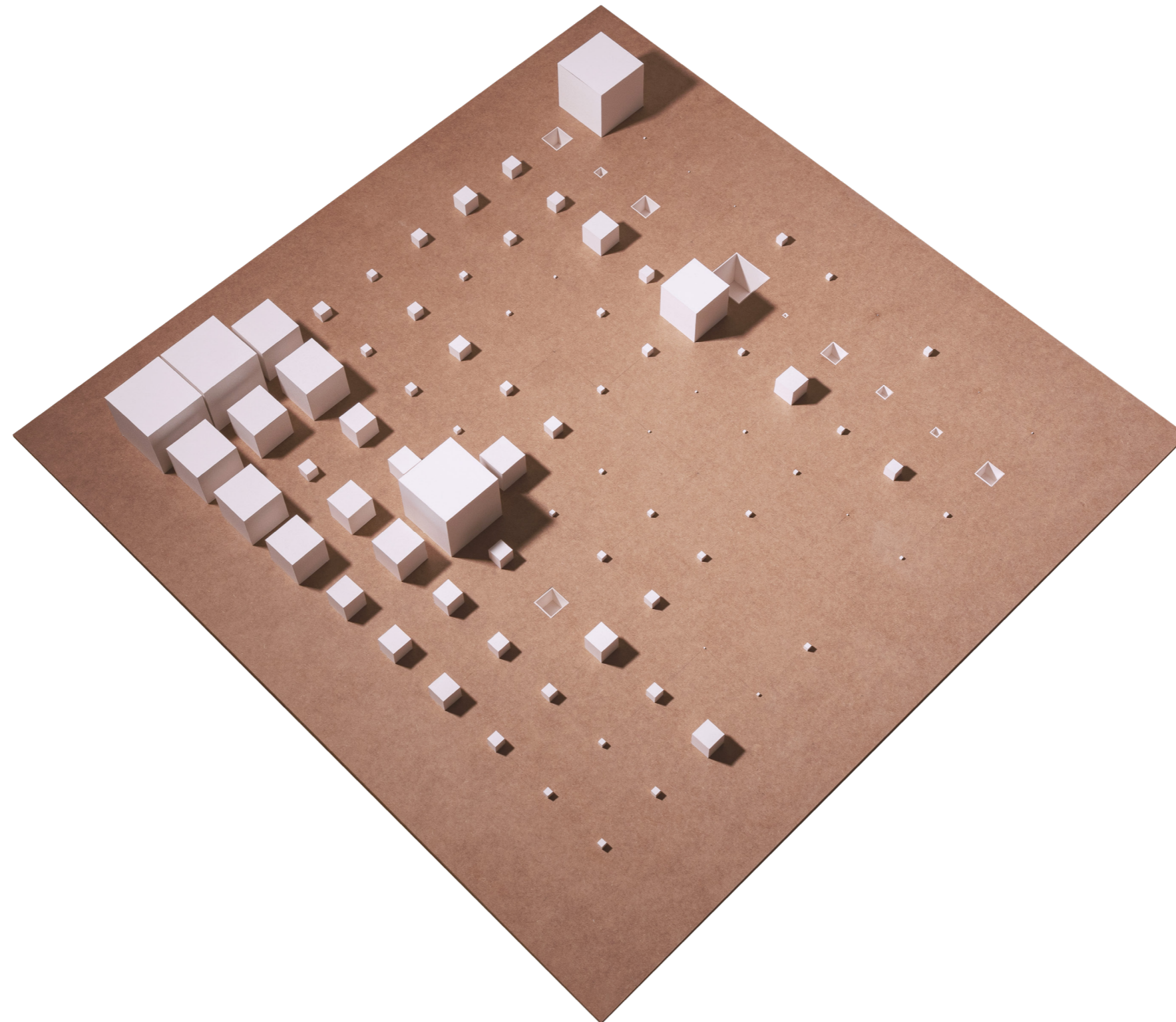
We investigated the amount of material installed in the faculty building of architecture 20.40 and represented its environmental impact. The impact is shown by cubes in relation to the installed mass or volume. The cubes built in the model represent different measurement units according to their representation: volume in m^3 , weight in kg, CO_2 equivalent emissions and trichlorofluoromethane (R-11) emissions - also in kg. The latter is a gas which is the cause of the depletion of the stratospheric ozone layer. In order to achieve comparability, the largest quantity in each measurement unit is represented in the same size. All others (within the same measurement unit) are relative to this size. This results in negative volumes when considering the recycling potential of building materials, or - for example - in the production of wood. There are also data gaps in what we present: in the case of demolition the values are only given for bulky and heavy construction materials. When considering the CO_2 equivalent emissions, the decisive role of the choice of materials for production

and waste treatment is striking. In addition, it becomes clear which material is recyclable with conscious planning and which material performs poorly in terms of its usage.

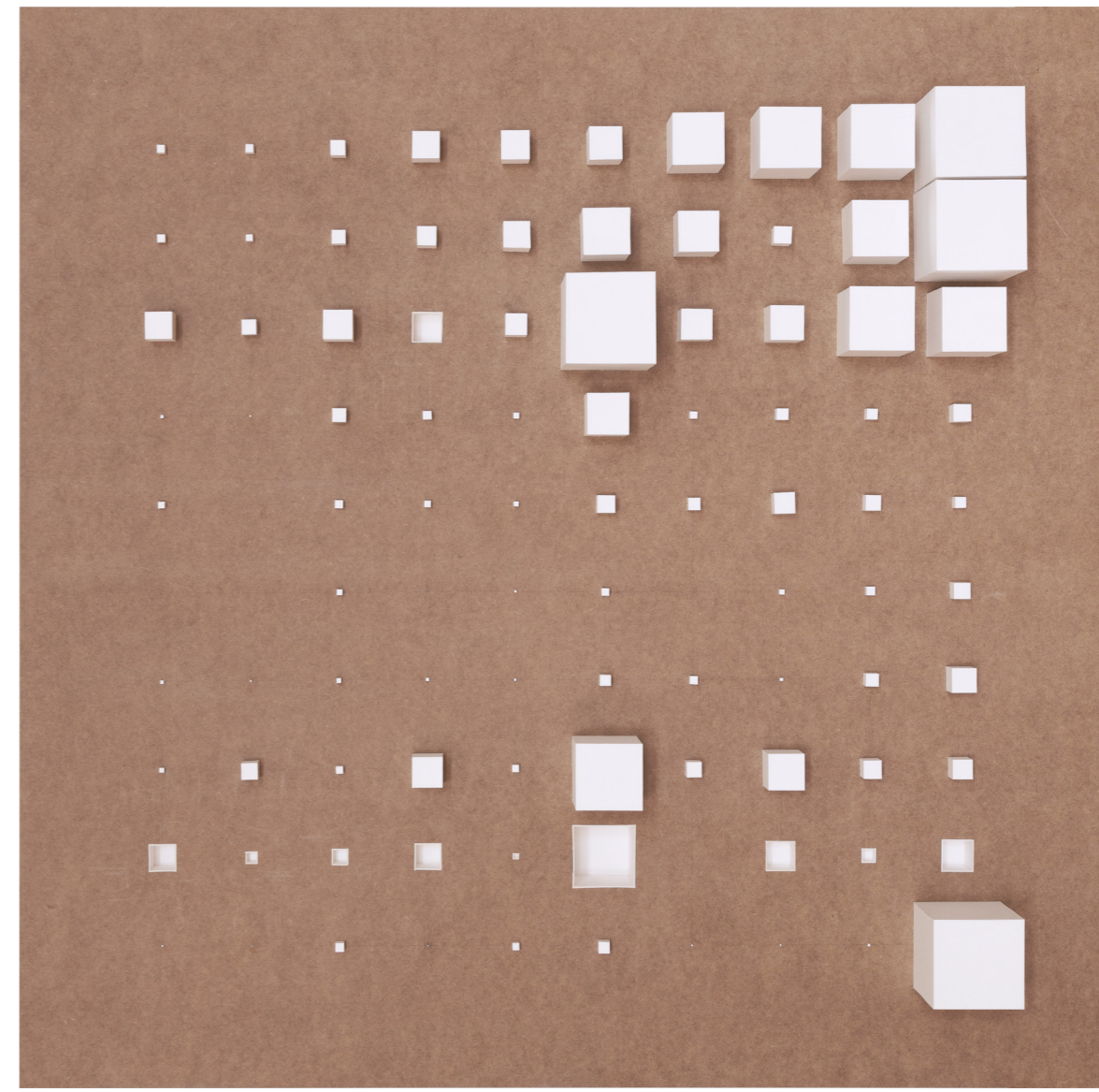
During the construction of the model, but also through the observation, an implicit impression is created of how the masses are proportional to each other. The ecological burden of production, installation, transport during the erection, and demolition of the building, and waste treatment become visible in this image.

For example, steel accounts for 2,6% (sixth column in the model) of the built volume, and amounts for 9,7% of the weight of the building. It represents the largest cube within the production category. It accounts for 52% of the CO_2 equivalent greenhouse emissions of the entire building during construction. It is thus the biggest impact on global warming, closely followed by concrete and brick. In waste treatment, steel also emits a lot of CO_2 , which cannot be entirely offset by the recycling potential. For concrete we only consider its mineral components, the proof is also taken into account in masses of steel. We used data sets from ÖKOBAUDAT as a basis. For all building materials we have estimated the corresponding installed masses.





	Aluminium	PVC	Glass	Wood	Ceramic	Steel	Plaster	Insulation	Brick	Concrete	
Volume	3	4	19	131	166	224	864	1.389	1.572	4.401	m
Weight	8.046	5.440	46.875	112.588	318.720	1.716E3	1.124E3	111.129	2.829E3	11.442E3	kg
Production	69.469	10.929	79.250	-83.740	2.142	2.242E3	103.230	133.827	851.812	866.971	kg CO ₂ eq
Transportation	60	14	8.437	2.008	706	240.379	1.212	5.541	3.912	17.163	
Assembly	868	N/A	1.859	839	301	18.543	6.852	30.755	11.789	4.753	
Demolition	N/A	0	750	N/A	27	1.234	N/A	485	2.071	13.642	
Transportation	58	14	236	70	47	4.781	2.486	113	8.026	52.810	
Waste	325	16.392	1.654	98.122	966	949.843	11.671	164.194	21.142	26.449	
Recycling	-54.149	-3.630	-9.718	-51.673	-138	-782.436	0	-68.775	-6.45	-94.178	
Ozone Depletion	3,4E-06	5,5E-07	3,0E-05	2,1E-10	1,6E-06	3,4E-03	1,3E-09	1,3E-09	4,8E-09	2,4E-04	



THE VIEW OF PAPER — Paper is an essential material that is used massively in our everyday lives in the faculty building. Its daily usage is based on very different purposes. First of all it is the basis of our creative design processes, since good ideas start with a simple sketch on paper. Secondly it is an educating element that conserves knowledge in a book in the library over many years. Then again it can have a very short lifespan as a hygienic product. Most visible is paper in the building as printed information. The hallways are filled with posters and printed student projects.



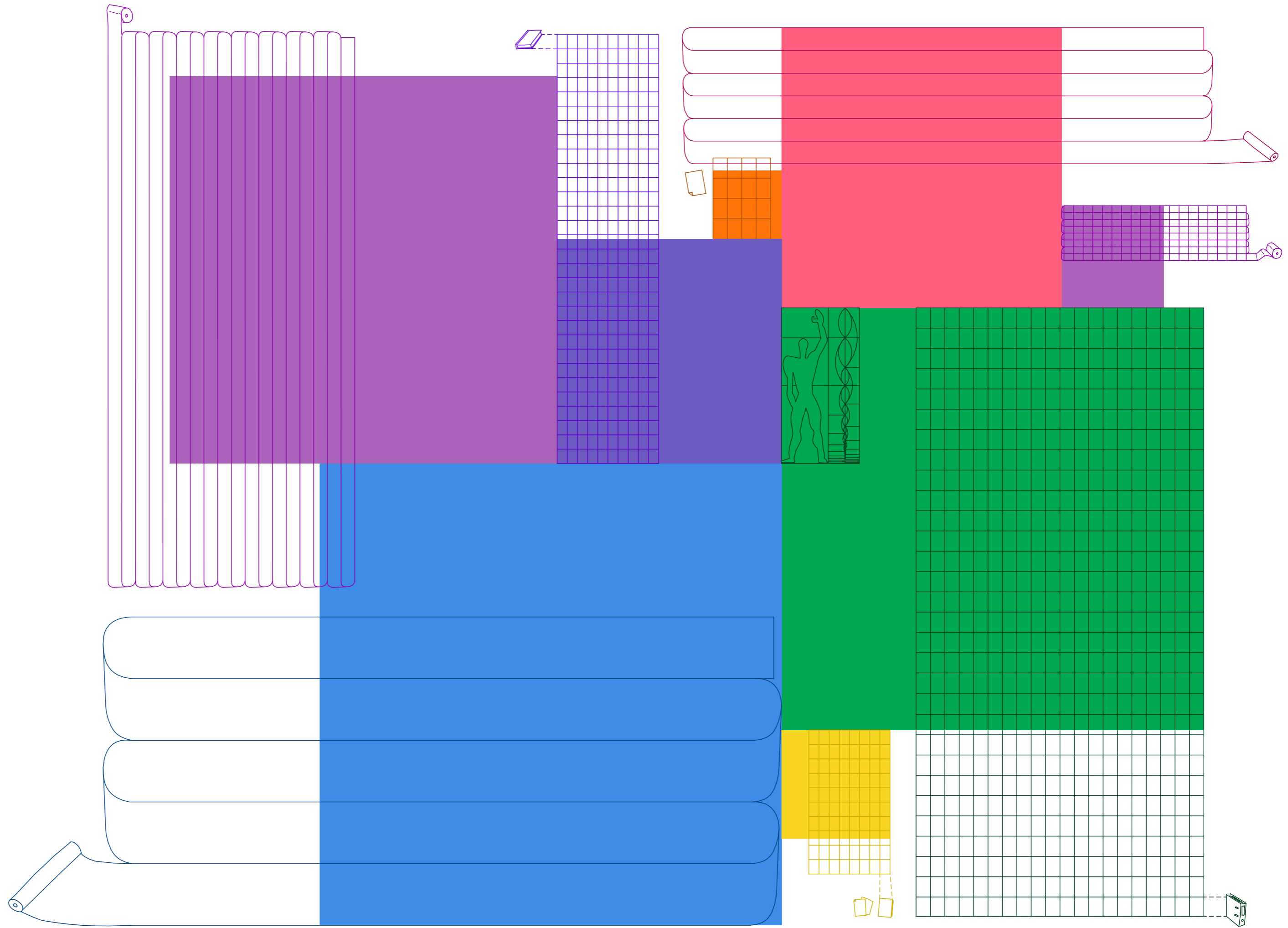
UNFOLD

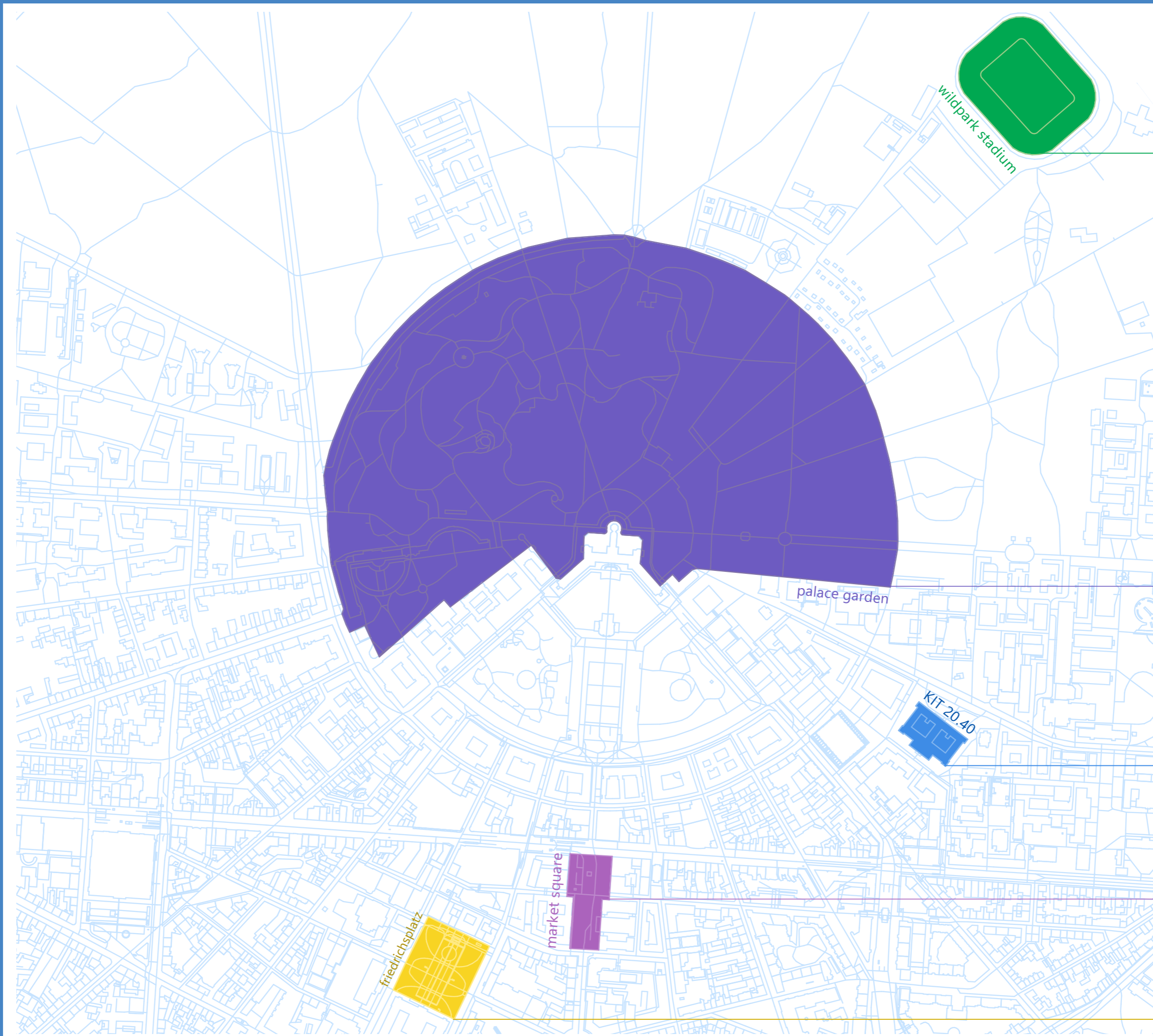
SIZE Since the actual amount of paper that surrounds us is highly underestimated we wanted to unfold the hidden size of paper. Starting by analyzing the size of the main paper elements that exist in the faculty building: sketching paper - toilet paper - file folders - sketchbooks - printing paper - paper towels - books - posters. When these elements are unfolded and compared to a human being - as the measure of all things - the paper elements surprisingly take up more space than expected.

SCALE The total of one type of paper that is used within a certain time is just a number. So in the following graphical experiment we take out every single sheet of paper and lay them out next to each other. In this way we create an (imaginary) paper surface. To visualize the size of the resulting surface we then compare it to Karlsruhe's urban context. For instance, the size of all pages of all books in the library is equal to the size of the palace garden.

CONSUMPTION Within a week the absolute amount of paper in a room fluctuates strongly according to the schedule of the students. During a seminar or lecture the amount of paper increases rapidly while the amount of paper in the studio rises continuously throughout the week until the day of presentation. In conclusion: the sum of all paper in a room depends heavily on a certain day and the exact point of time.

MOTION In our everyday life paper constantly follows us through the faculty building. Once it enters the building, it flows through a sequence of rooms since it is an essential component of every seminar meeting, lecture and presentation. Following the invisible trace of paper we discovered how rooms are connected through the same type of paper.

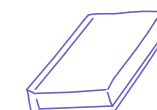




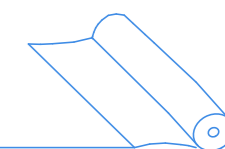
folders in the secretary's offices



books in the library



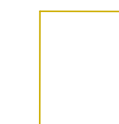
prints in one month

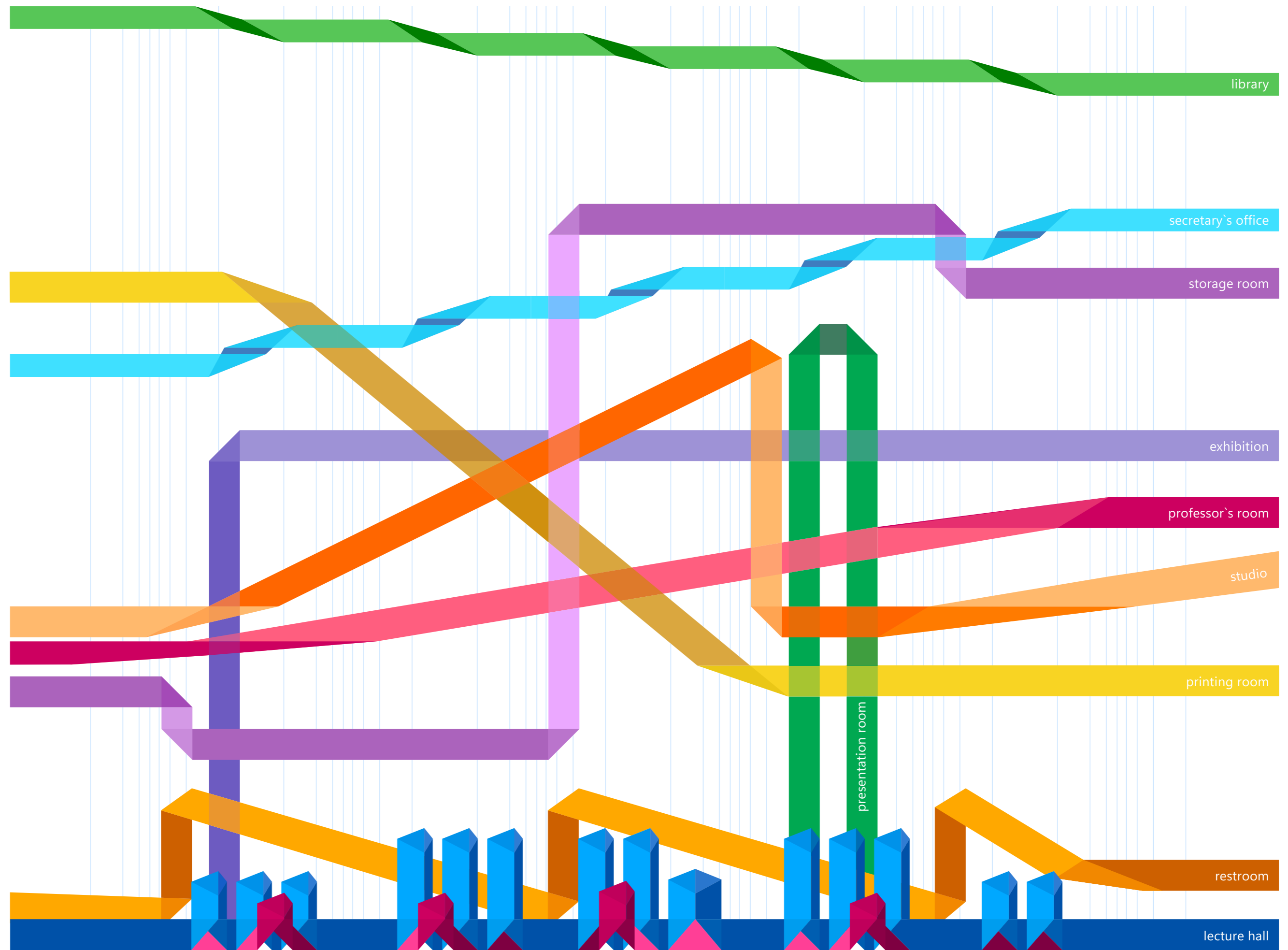


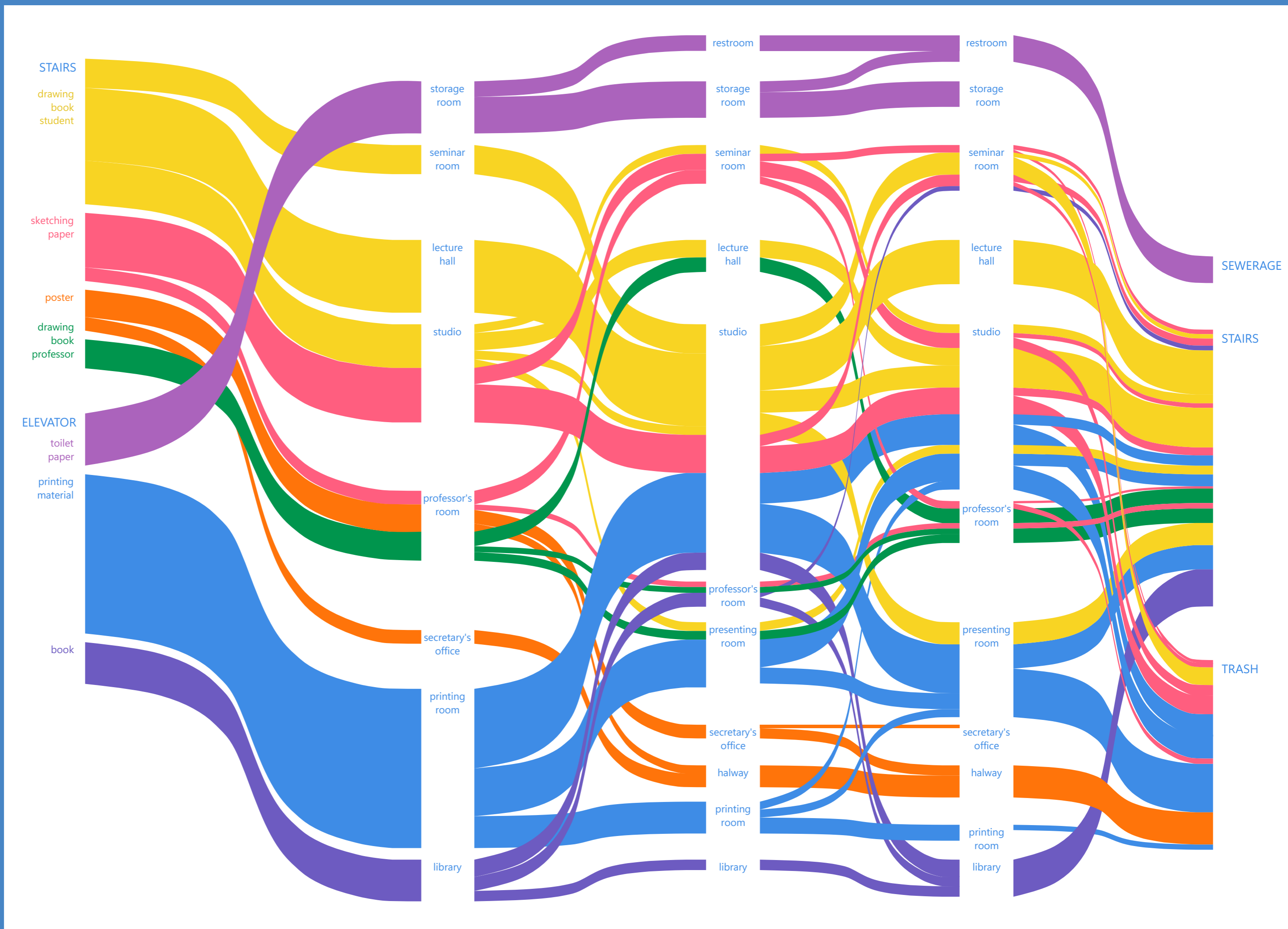
toilet paper used within two weeks



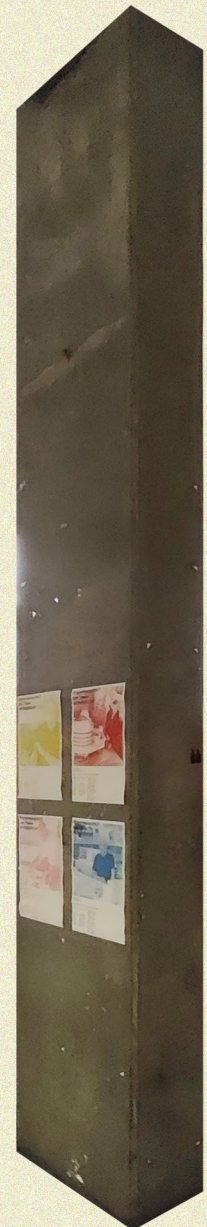
sketchbooks of all architecture students







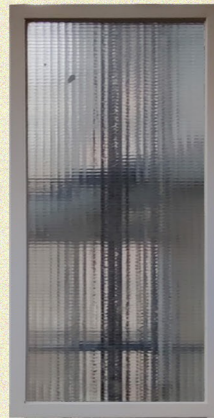
KITKEA



x 18
x 12



x 112
x 2



x 125
x 26



x 120
x 4



x 1 x 3



x 120
x 9

x 6
x 2

REUSE, verb

"is the practice of using an item, whether for its original purpose or to fulfill a different function.

Reuse – by taking, but not reprocessing, previously used items – helps save time, money, energy and resources. In broader economic terms, it can make quality products available to people and organizations with limited means, while generating jobs and business activity that contribute to the economy"¹

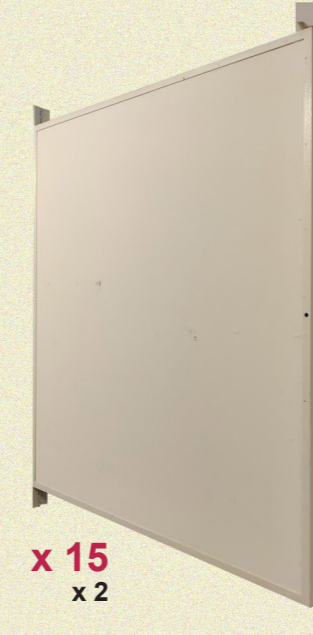
x 1 quantity of reusable elements at the KIT
x 1 used in the reuse pavillon project



x 12
x 2



x 40
x 4



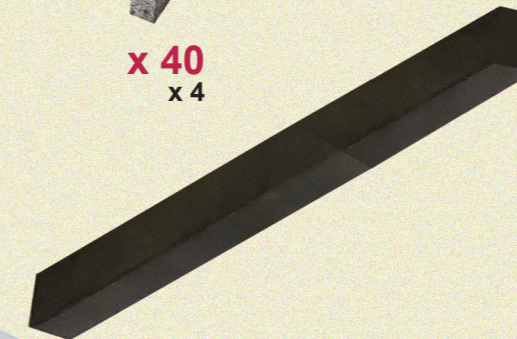
x 15
x 2



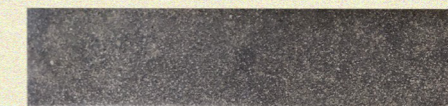
x 166 650
x 55 550



x 60
x 2



x 15
x 8



x 222
x 2

¹ Wikipedia, definition of reuse, visited on the 23.01.2023, url: <https://en.wikipedia.org/wiki/Reuse>

What if the architecture faculty of the KIT wasn't useful anymore?
 We could look at all the materials and furnitures that it has to offer,
 Their dimensions, quantities and qualities,
 All elements that we can deconstruct and reuse,

And create a catalog,
 Where students are walking around,
 Thinking about all the potentials of those materials,
 And create something new..



x 4 x 19



x 43
x 1



x 4000
x 266



x 1 x 5



x 112
x 3



x 204
x 9



x 336
x 138



x 3
x 2



x 110
x 3



x 12
x 1



x 3300
x 3



x 243.990
x 81.330



x 60
x 4

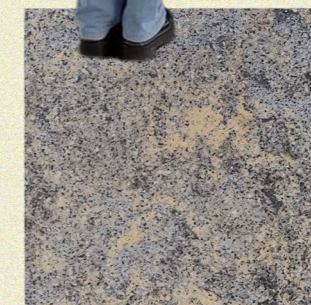


x 7680
x 37

x 240
x 1



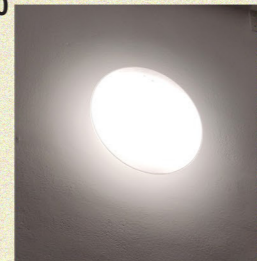
x 150
x 6



x 222
x 9



x 1620
x 1620



x 50
x 3



x 238
x 2



x 56
x 7



x 2
x 1



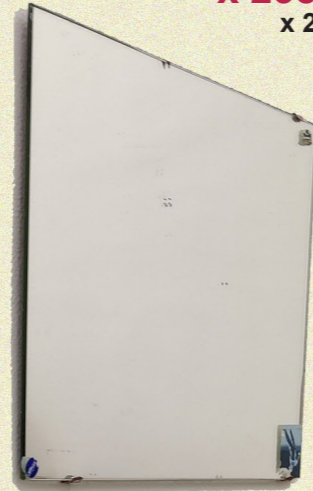
x 1
x 1



x 222
x 2



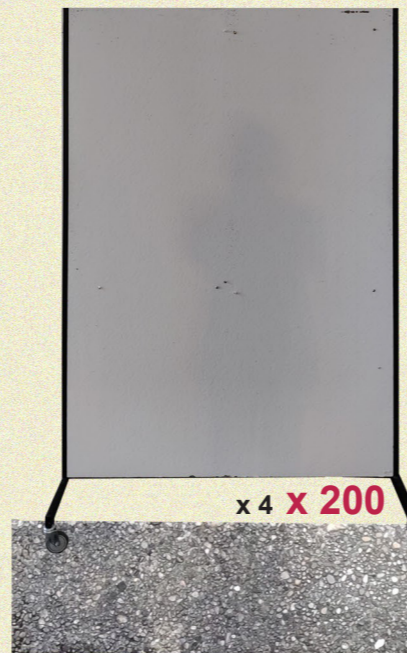
x 4000
x 12



x 10
x 2



x 9
x 1



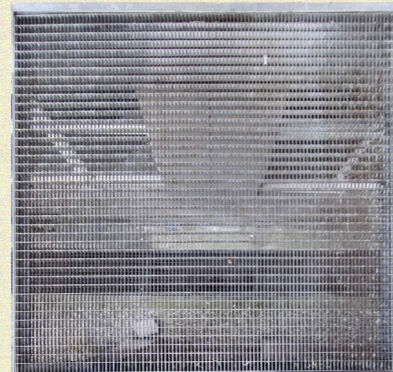
x 4 x 200



x 9
x 3



x 6000
x 2



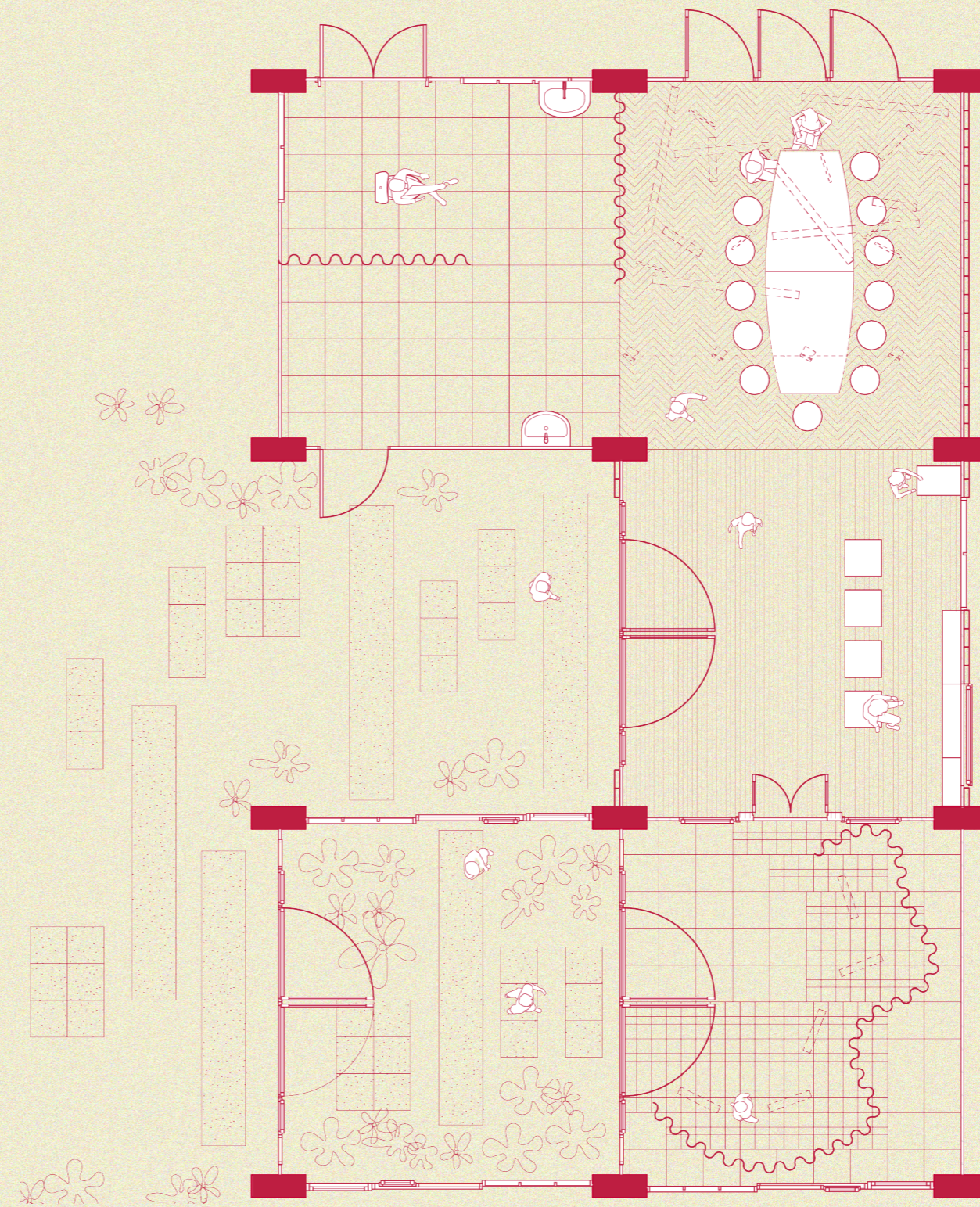
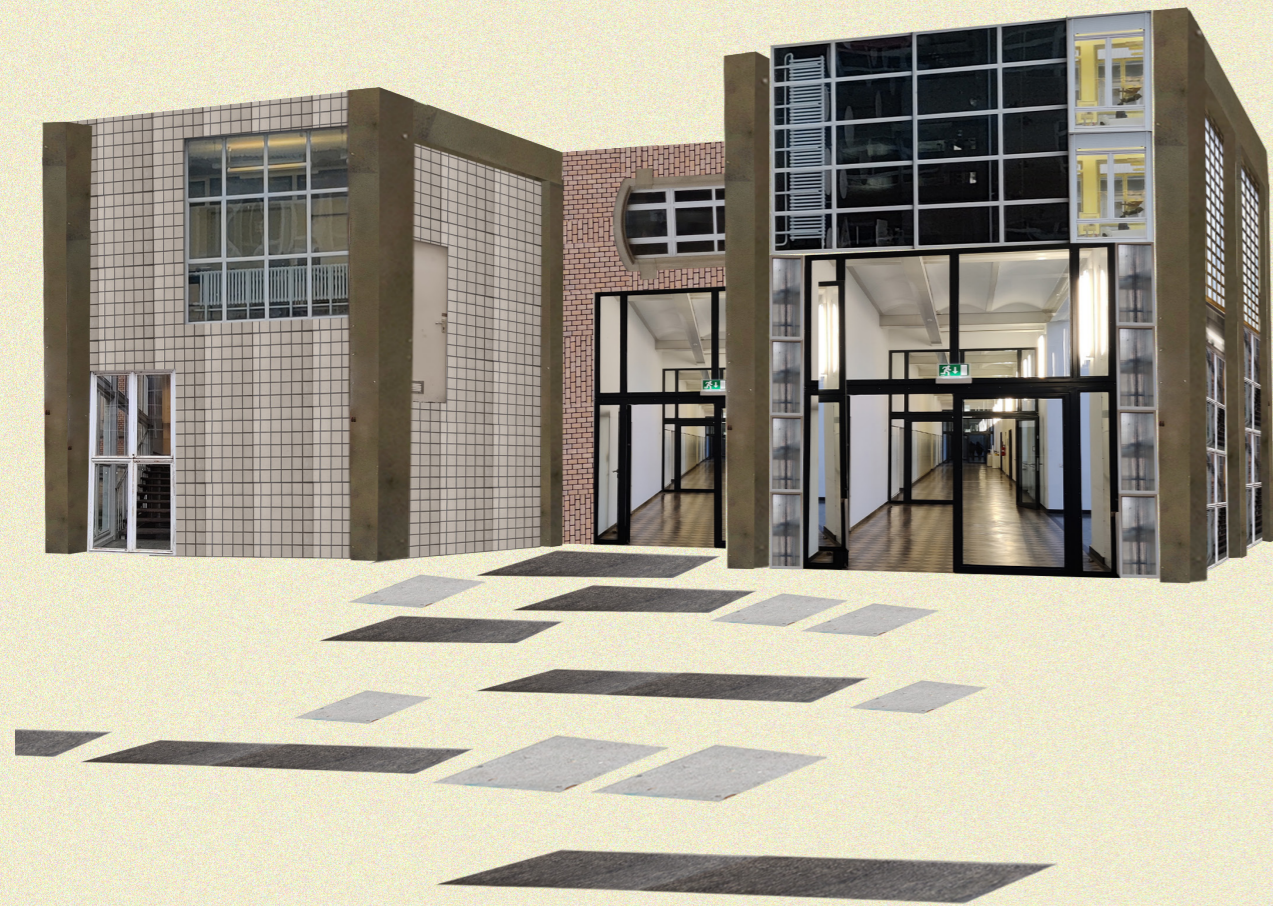
x 240
x 1

x 10
x 4

KITKEA

We could create a reuse pavillon,
A fun architecture,
Where we question the identity
Of the faculty,
Of its elements,
Of architecture itself.

Where doors reach the sky,
Where lights create art installations,
Where curtains guide visitors,
and vertical elements switch to horizontal positions.



PULSE 20.40

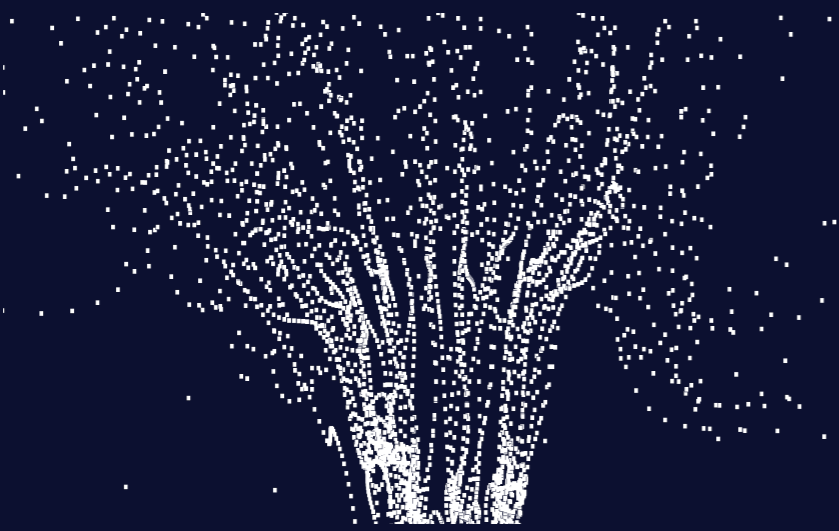
I invite you to see,
what you normally don't notice.
With a bit of help we'll make them justice.

At 8 in the morning they start pumping
and get me in flow.
They rush throughout the day
and wake my soul.
From the basement to the ceiling
they get every part connected
and once the heart starts working
they get you all injected.

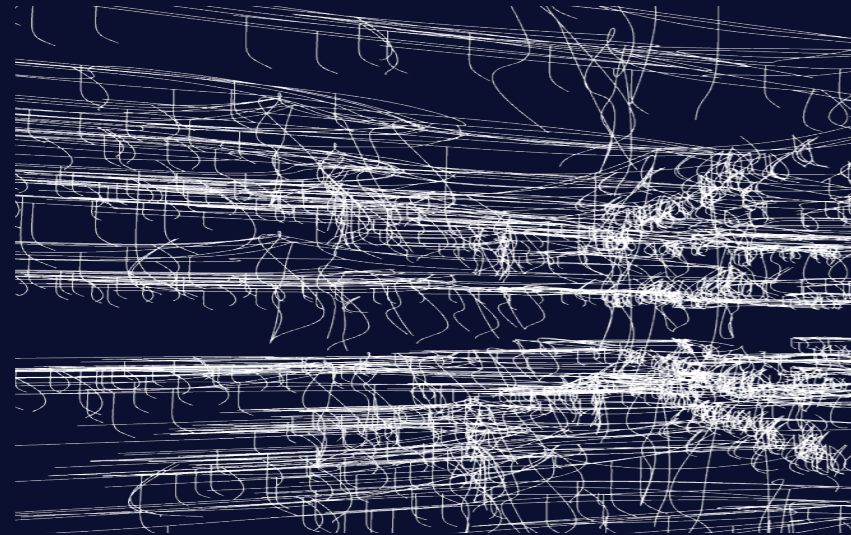
On top of every corridor,
up every wall or hidden in the ceiling,
they get you that, what you are all needing.

Electricity it's called, everybody knows it,
you are always asking for it
when you are searching for a socket.

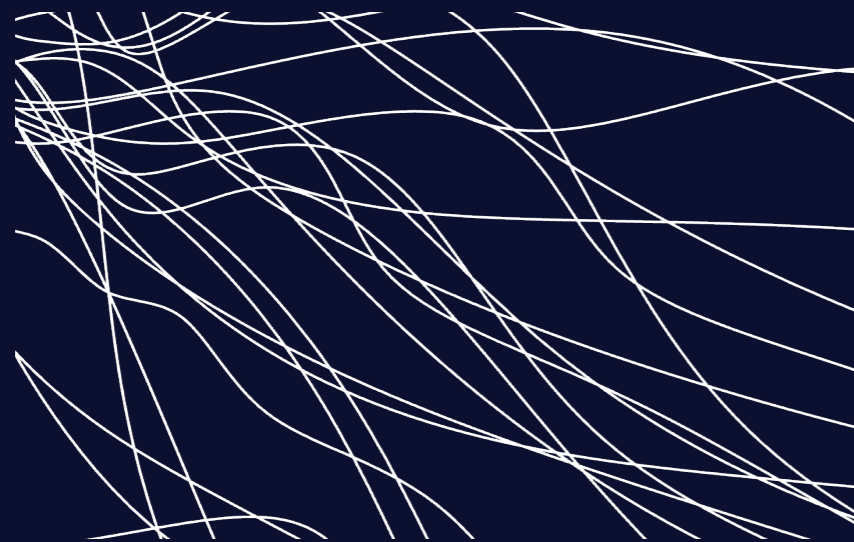
In the evening you turn on
the lights and make me dance, sometimes,
you even make me work at night
imagine how blood is running
through your veins
that's how the power is running
through these cables.



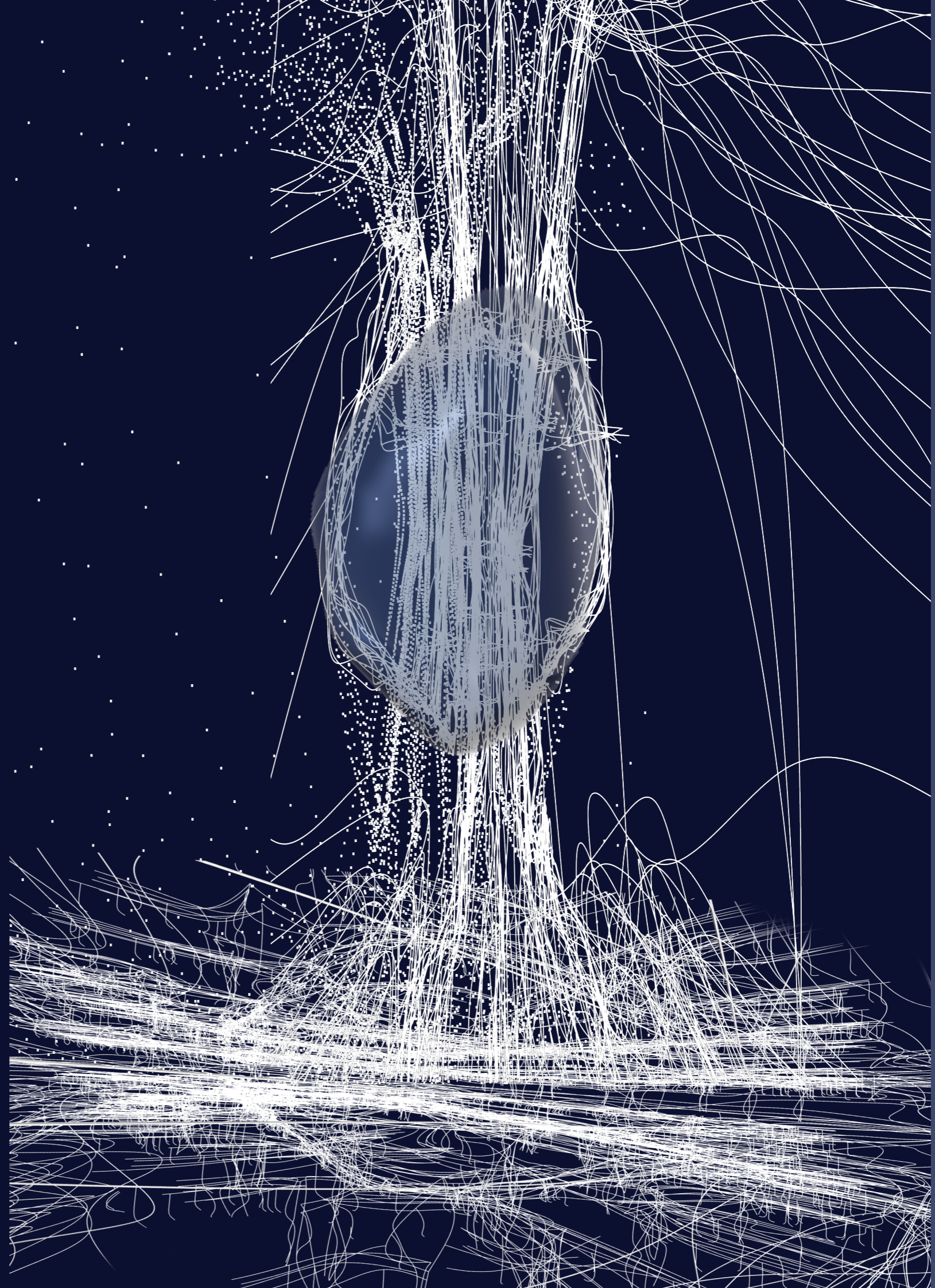
LAN

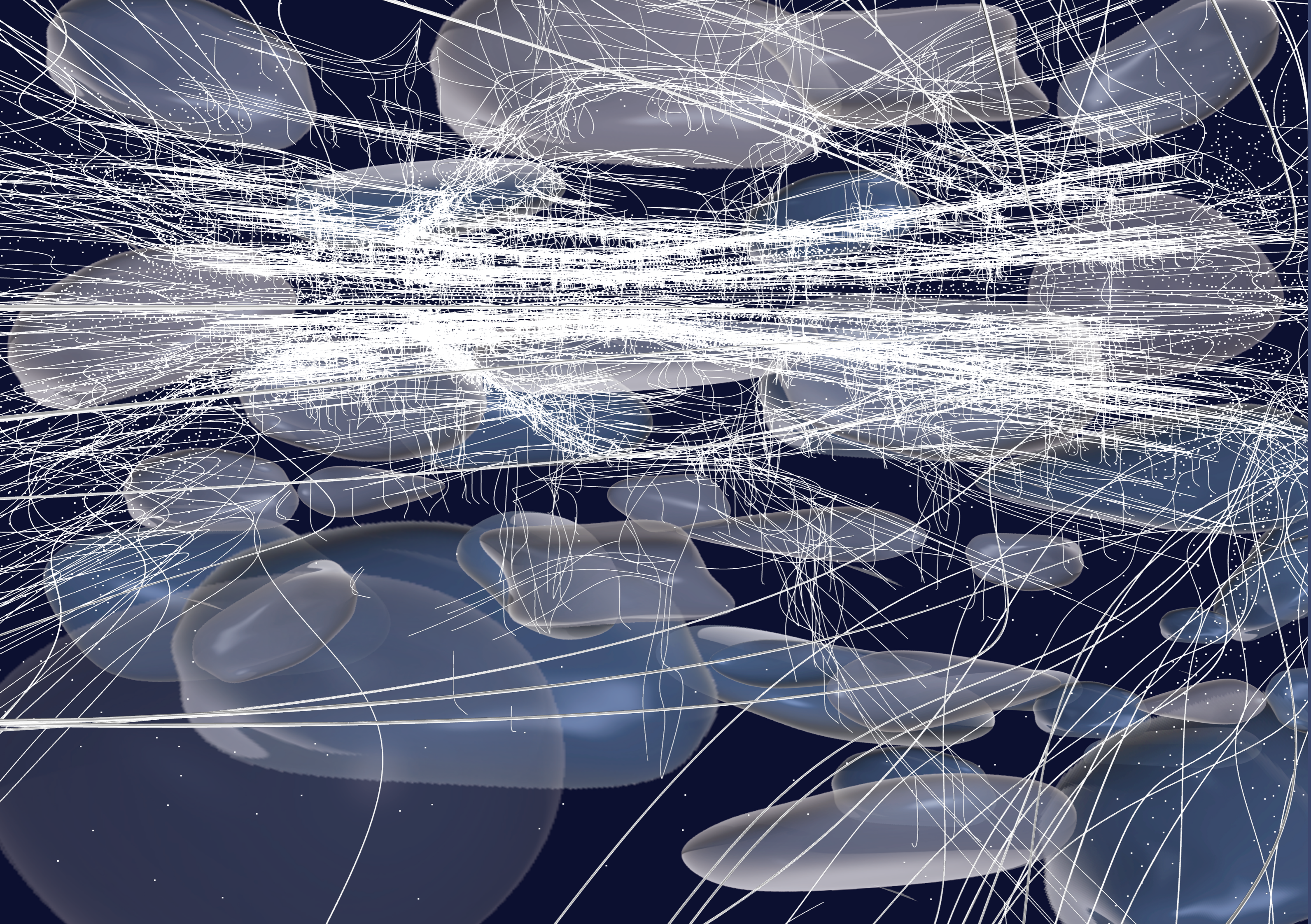


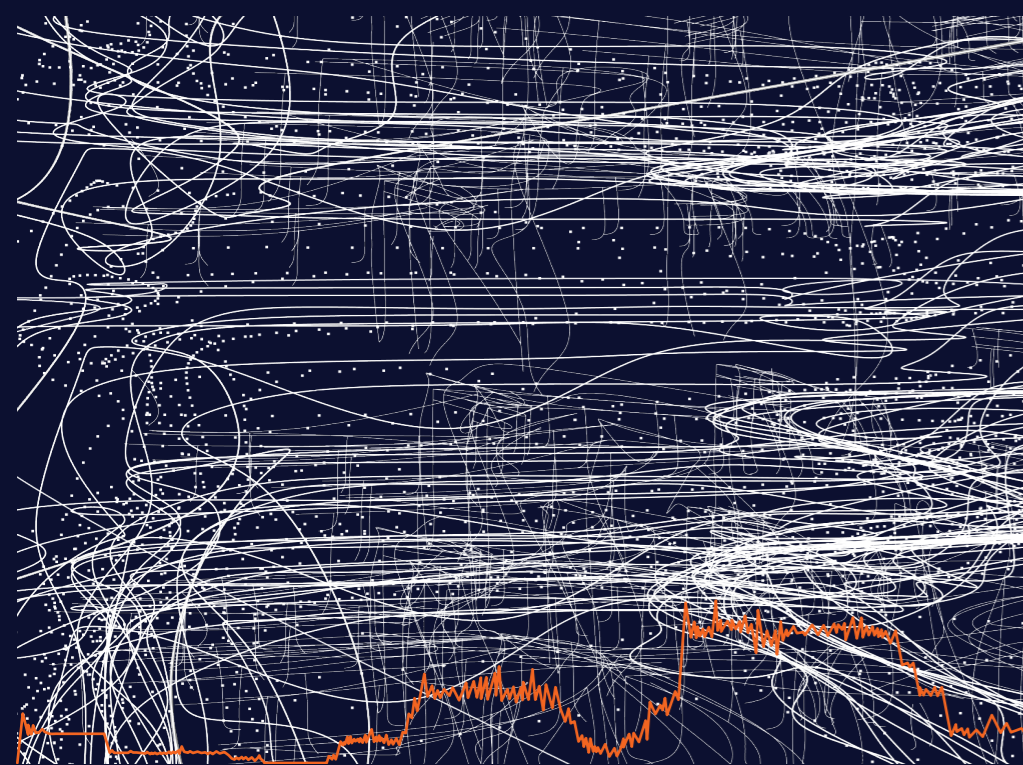
Light



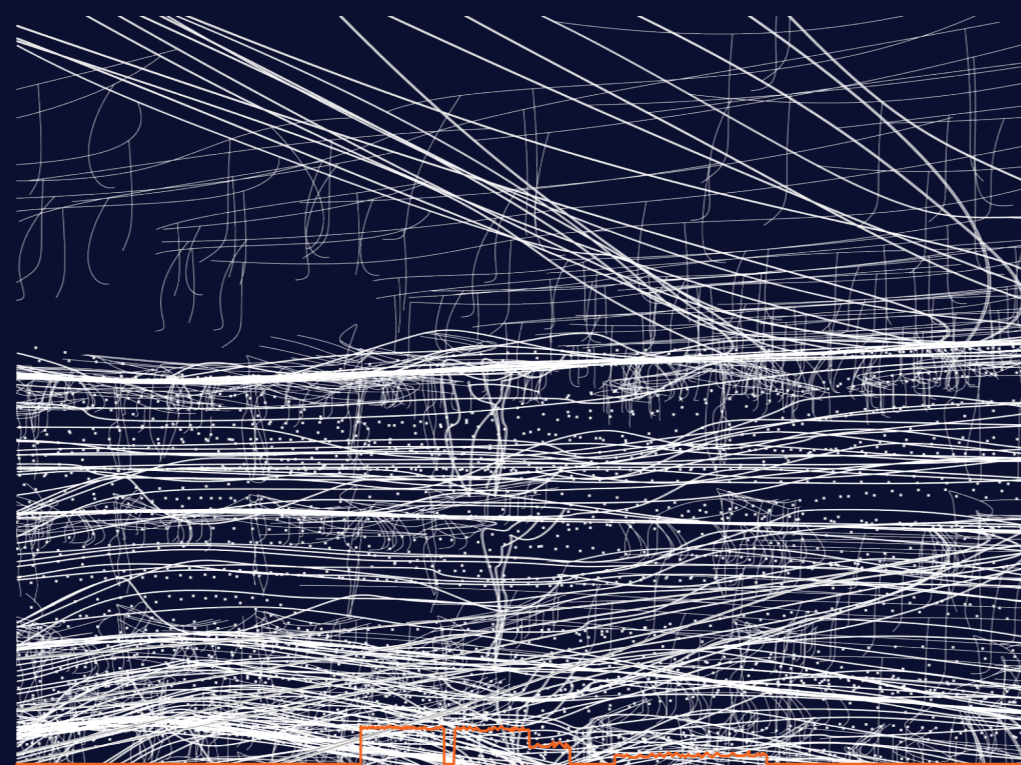
Socket



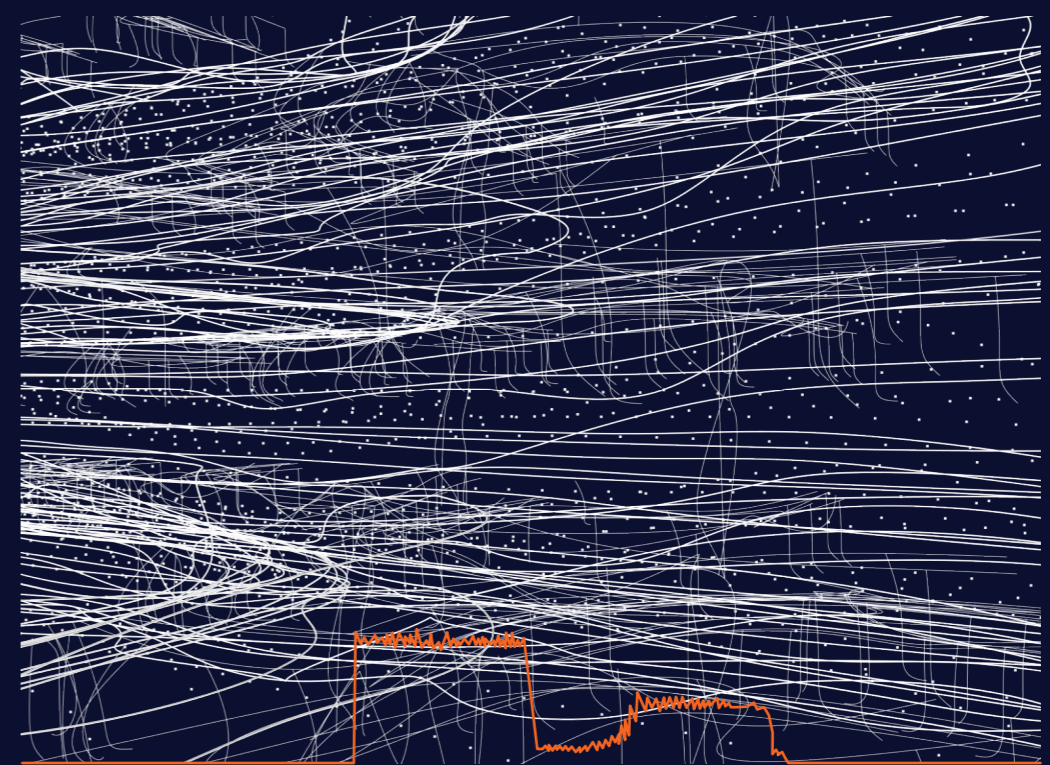




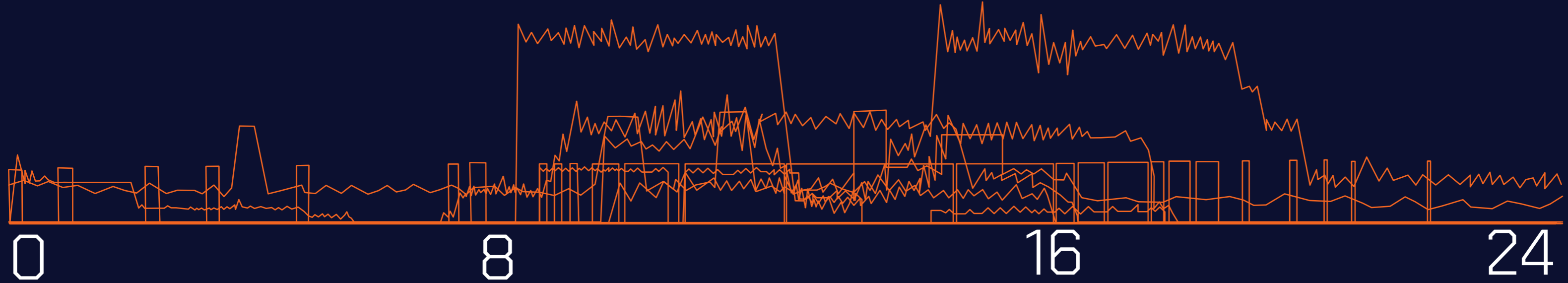
Studio



Lecture room



office

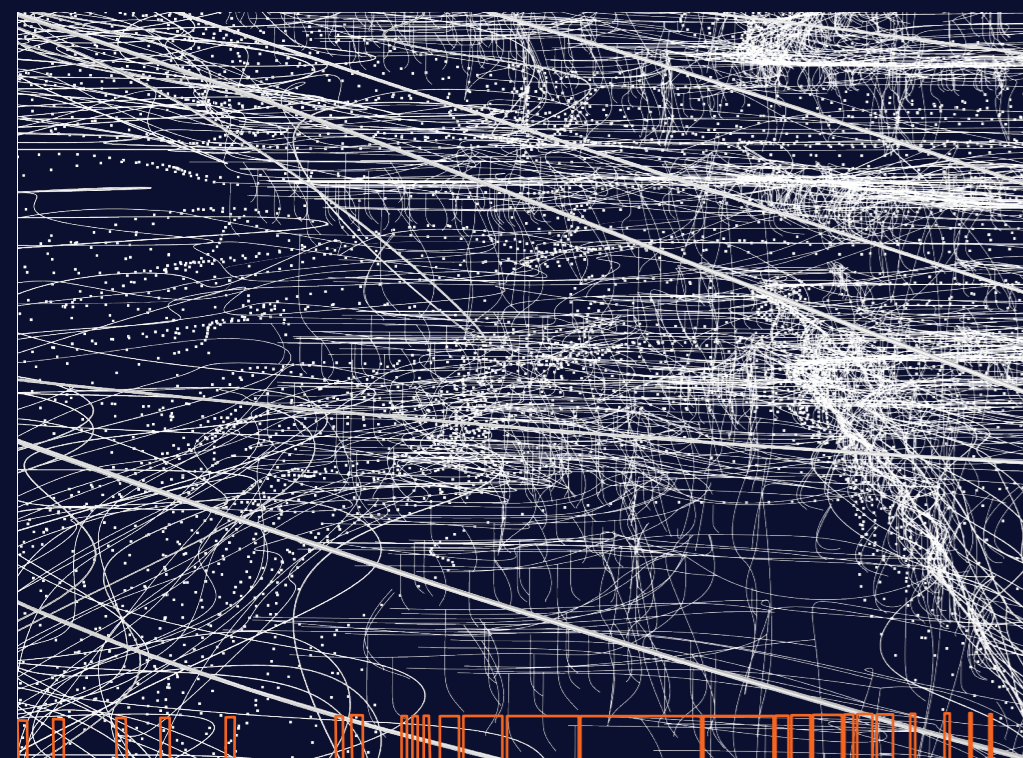


0

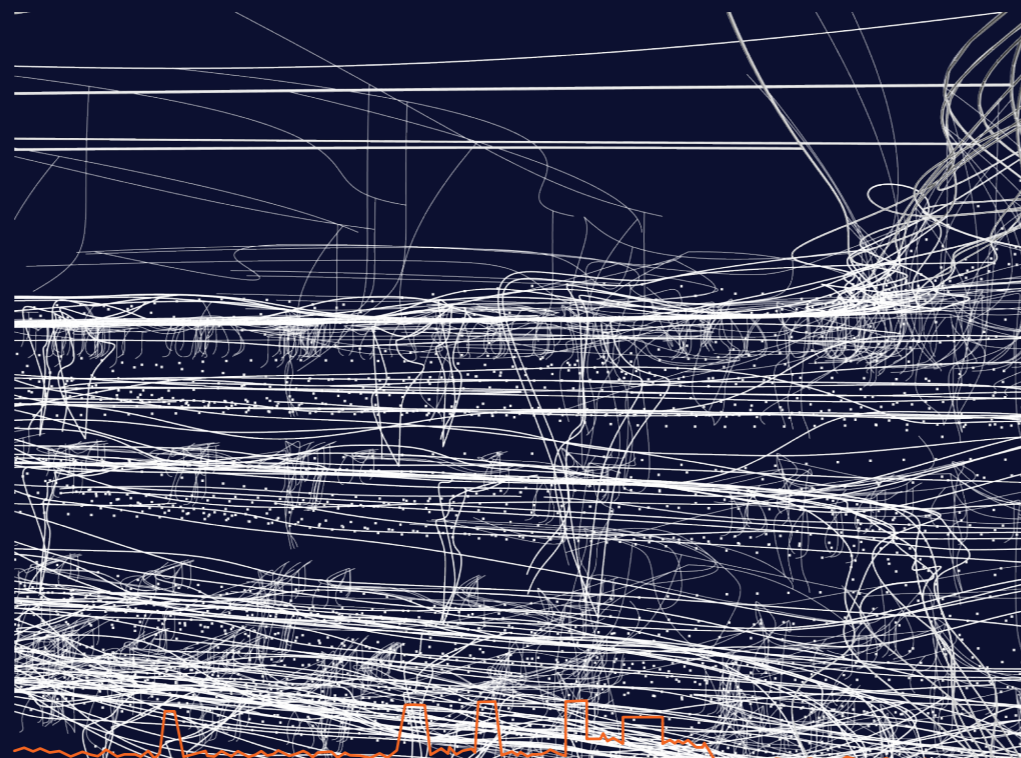
8

16

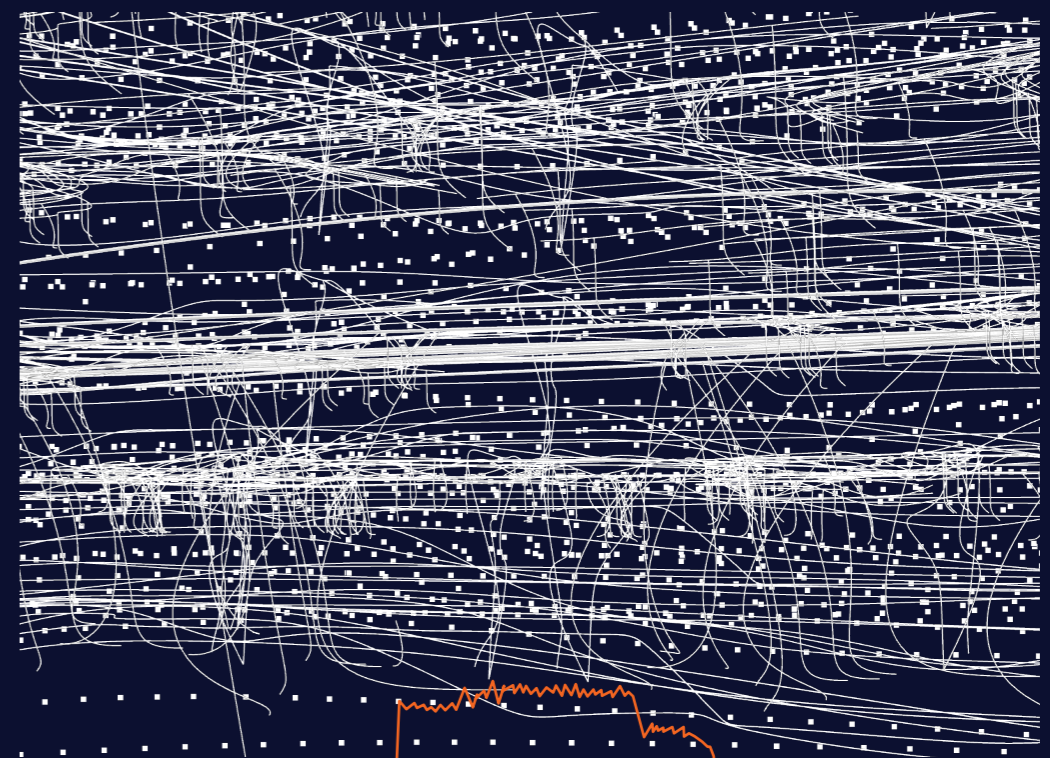
24



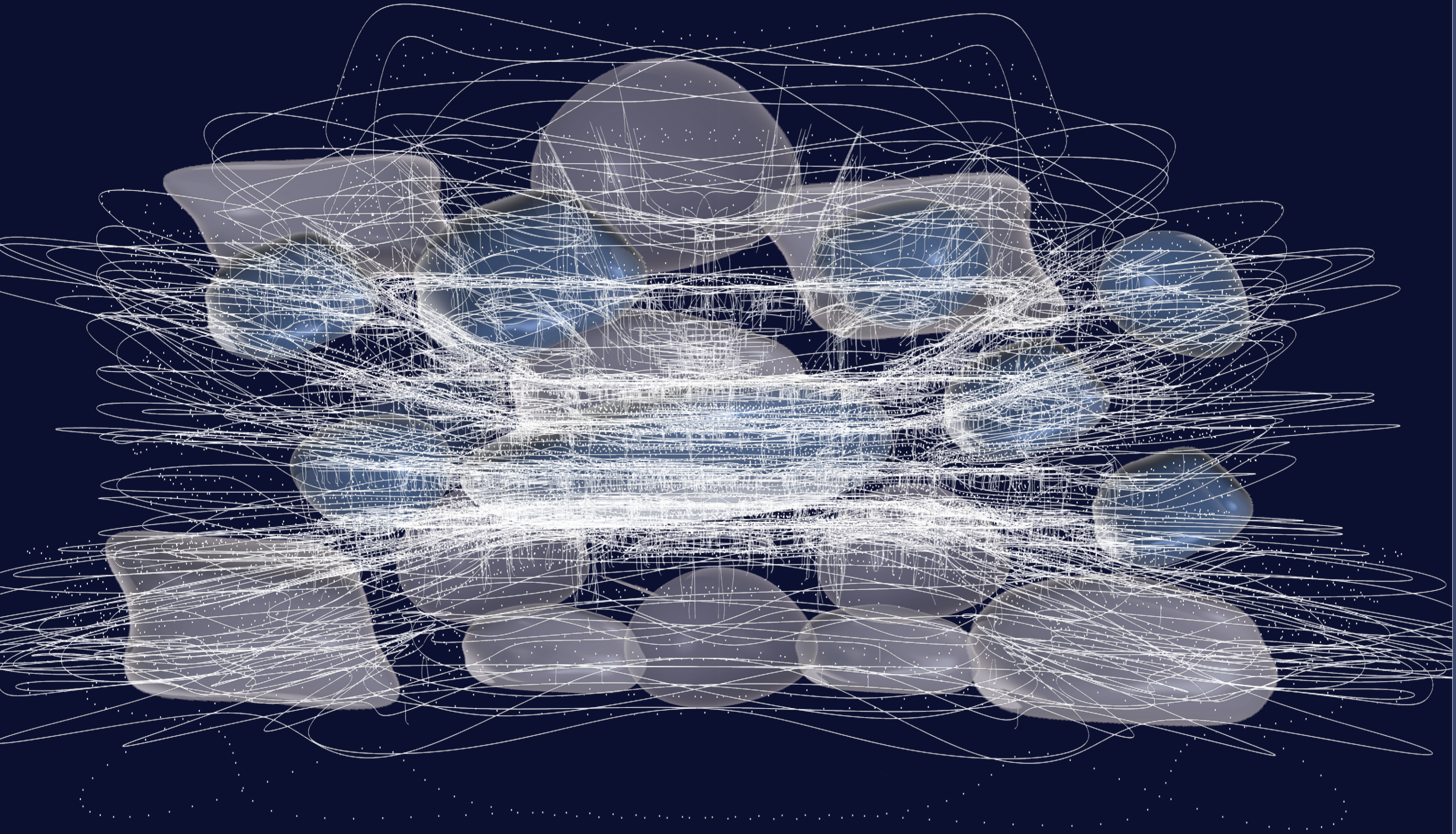
Foyer



Plotpool



Crafting room





INTO THE LIGHT



This is an interpretation of the presence and quantity of natural light in the building of the architecture department of the Karlsruhe Institute of Technology. The building provides a variety of light experiences - not only spacial, but also over the span of a day. This is topic of this illustrative analysis.

Goal of this work is to create an image before the readers inner eye that makes the solar impact on the building its insides visible in a way that creates a deeper understanding of the relation between light and structure.

Without natural light a proper work environment is not imaginable, so there is a lot to experience. For our graphical journey we focused on particular timestamps during the day. In this way we could compare the different levels of luminance between rooms and show how much sunlight is getting through the each window.

The graphical representation of tracing light raises questions about the surfaces it is shining on. A wall that is well lit on one side will mostly have shadows on the other side.

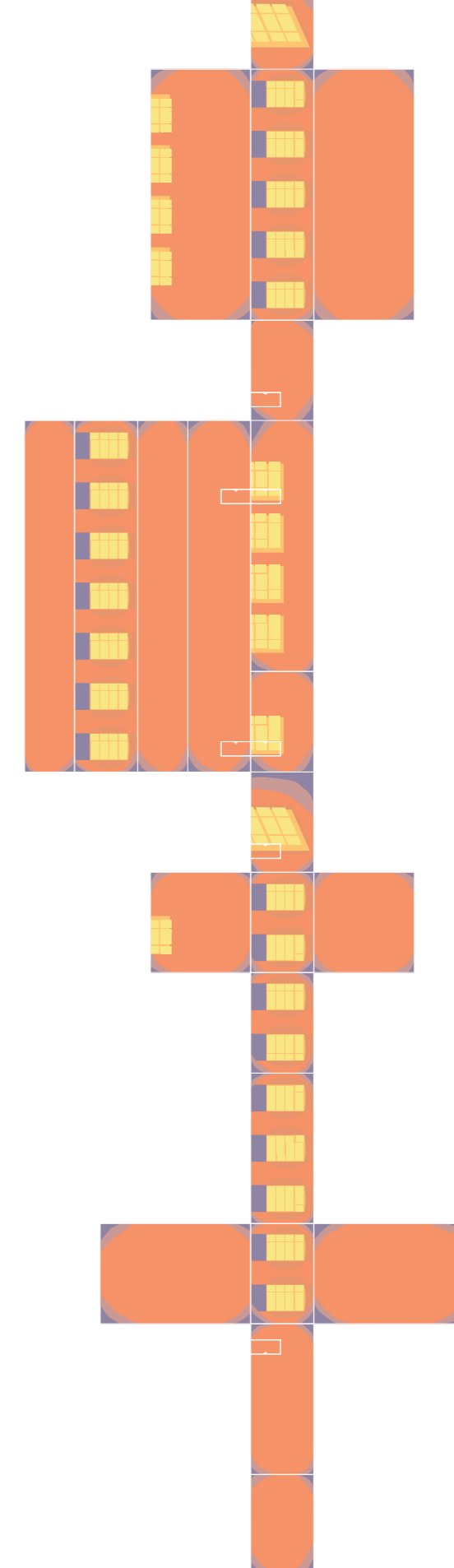
We made it our task to put these sources into a logical orientation and make the invisible not quite visible, but at least imaginable - and fun to think about.

INTO THE LIGHT

This re-ordering has the topic of unfolding the building into separate surfaces that are linked together like an origami. By adding the projection of the natural light sources on the folded planes an universal 'surround view' is created.

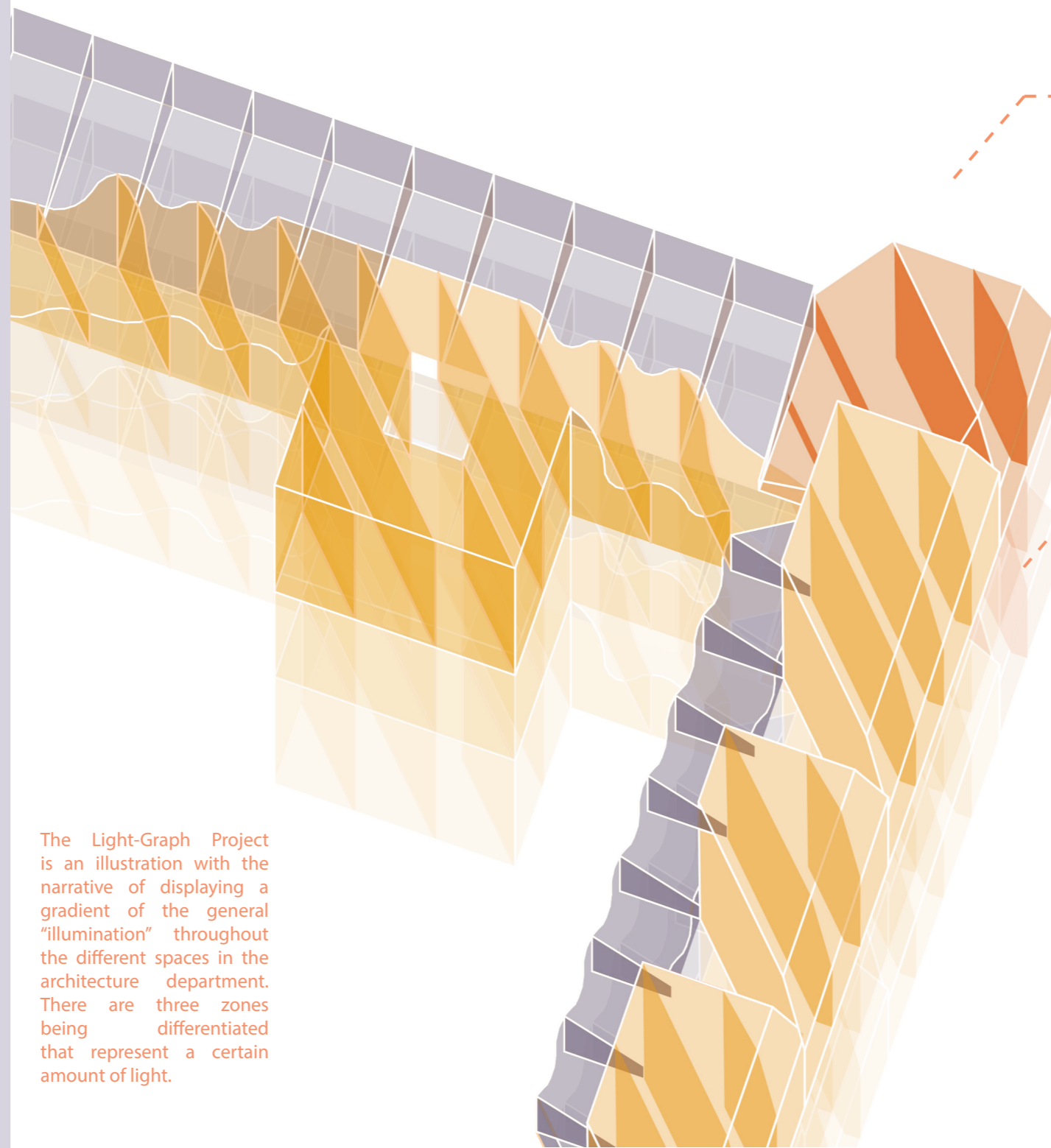
The gradient is layered from light (directly through the window) to dark in corners and poorly lit areas.

As a form-play, you can spend some time trying to reassemble the rooms in your head and check your own paths - like in a maze.

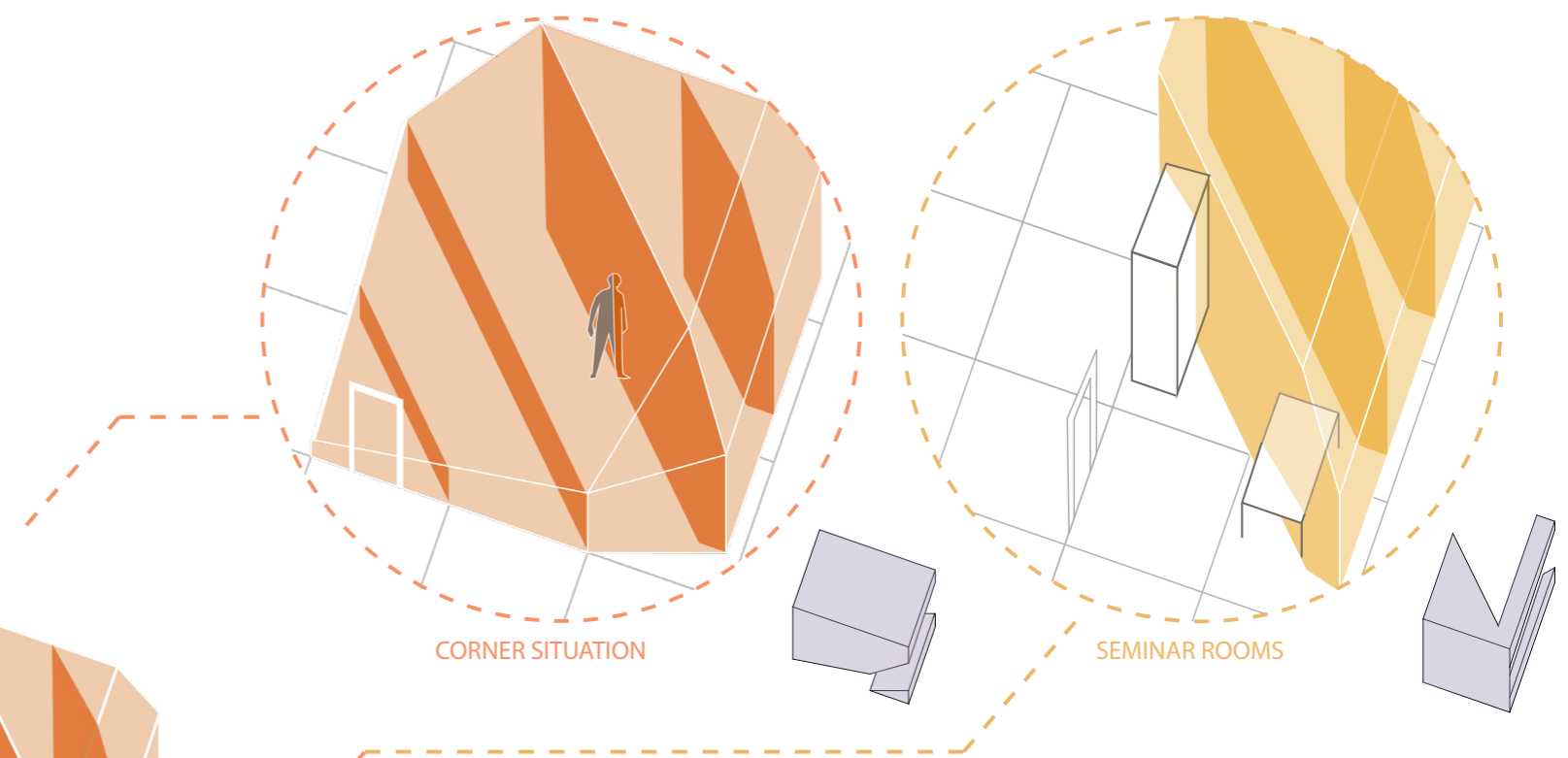


INTO THE LIGHT INTO THE FIGHT

RE-ORDERING 1

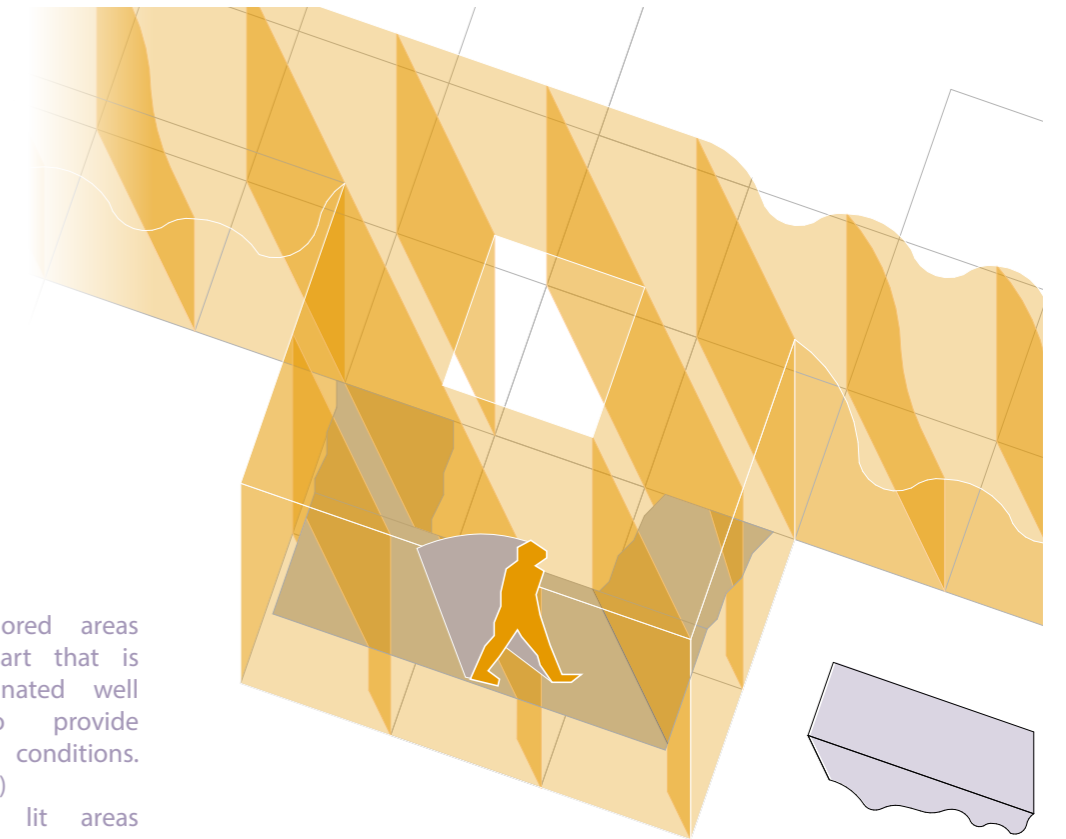


The Light-Graph Project is an illustration with the narrative of displaying a gradient of the general "illumination" throughout the different spaces in the architecture department. There are three zones being differentiated that represent a certain amount of light.



CORNER SITUATION

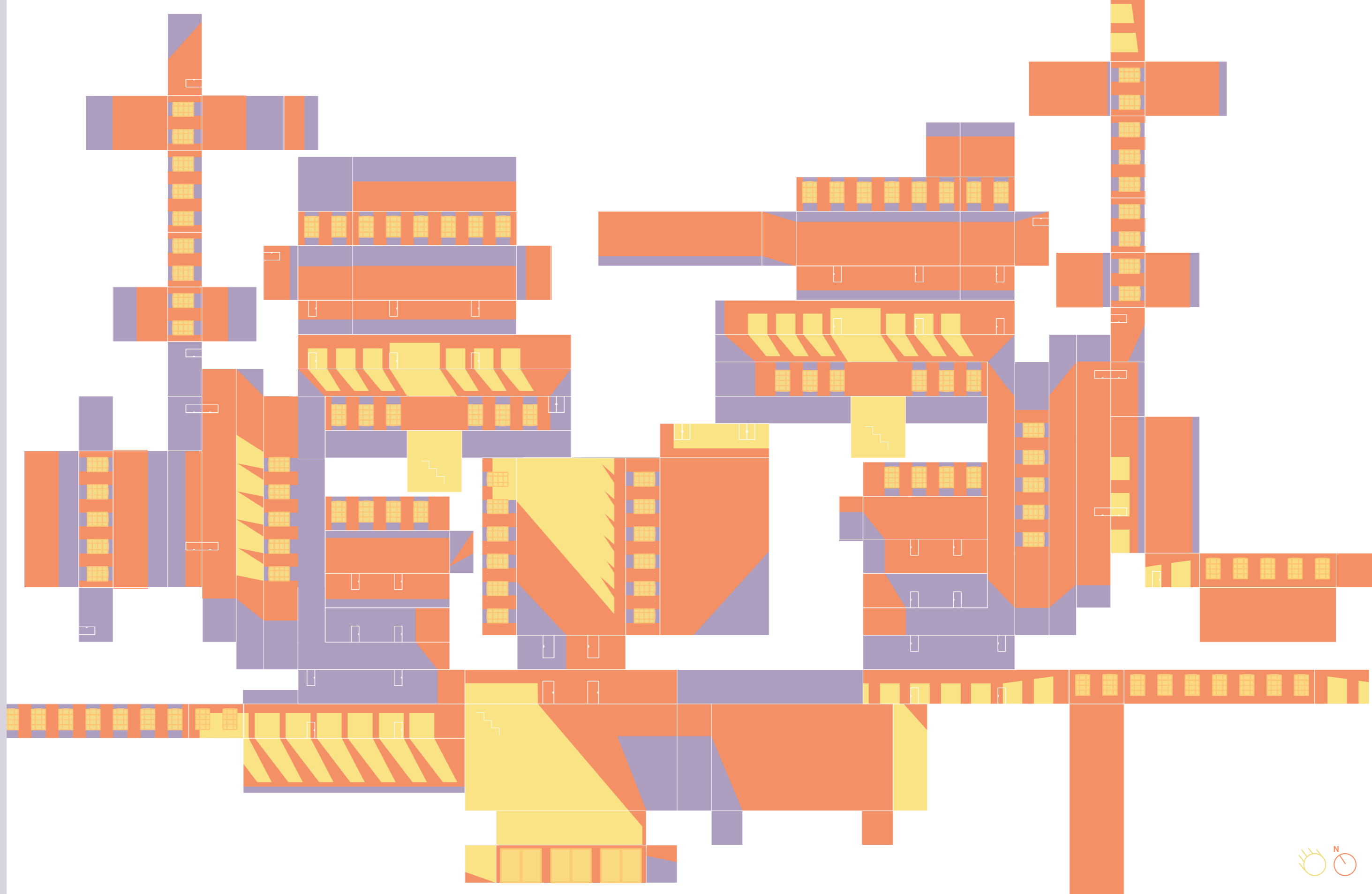
SEMINAR ROOMS



HALLWAY

All the colored areas mark the part that is being illuminated well enough to provide working conditions. (>400-500 lux)
The poorly lit areas are displayed in the small illustrations at the bottom right corner of every detail.

DIRECTION OF LIGHT: SOUTH-EAST
TIME(ZONE): (GMT+1) 12.00
COORDINATES: 49° 0' 34" NORTH
8° 24' 15" EAST



The right stuff

'Objects are what matter. Only they carry the evidence that throughout the centuries something really happened among human beings.' – Levi Strauss



Architecture and design, as main protagonists in the materialization of our habitat, structure two familiar universes in permanent interaction with man: the buildings that he inhabits and the objects that help his activities.

Buildings and objects have their own identities, although lax in multiple aspects, which allows them to eventually interfere, merge or exchange.

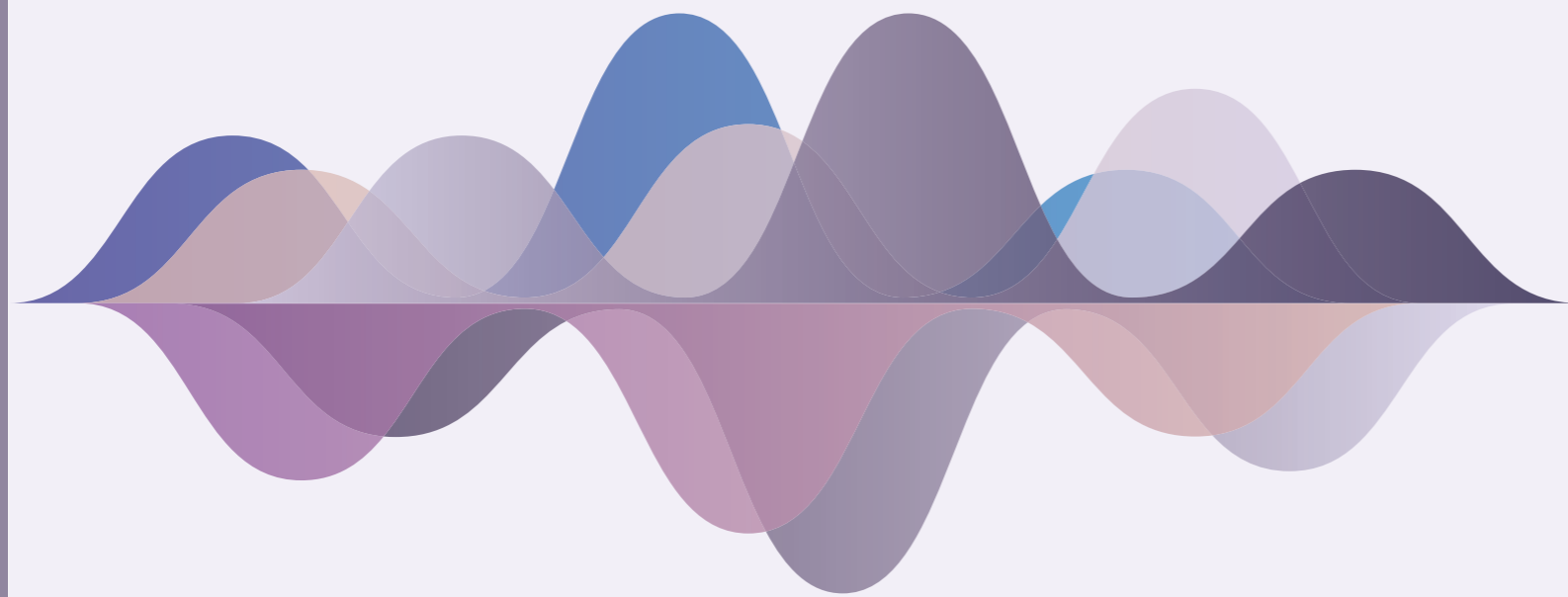
The buildings are perceived from the inside and from the outside, since they have a physical envelope that defines and protects an interior space. They are neither manipulable nor transportable. Its dimensions are related to the human body. Its composition is complex, involving a large number of variables, components and materials.

Objects are perceived from the outside. They are manipulable and transportable. They can be durable, but also ephemeral and disposable. Its dimensions are, to a greater or lesser extent, related to parts of the human body. Its composition is usually much less complex, usually involving a smaller number of variables, components and materials.

This rearrangement consists of a representation of the building based solely on objects that make it representative. A different point of view that helps us understand the complexity of the different spaces that make up the building. The diagram represents all those objects that best represent the building.

The diagram represents the main spaces that house the building, using only the objects found in them. In addition, their size varies depending on the importance they have when representing the building.





Good Vibrations

The world is full of waves.

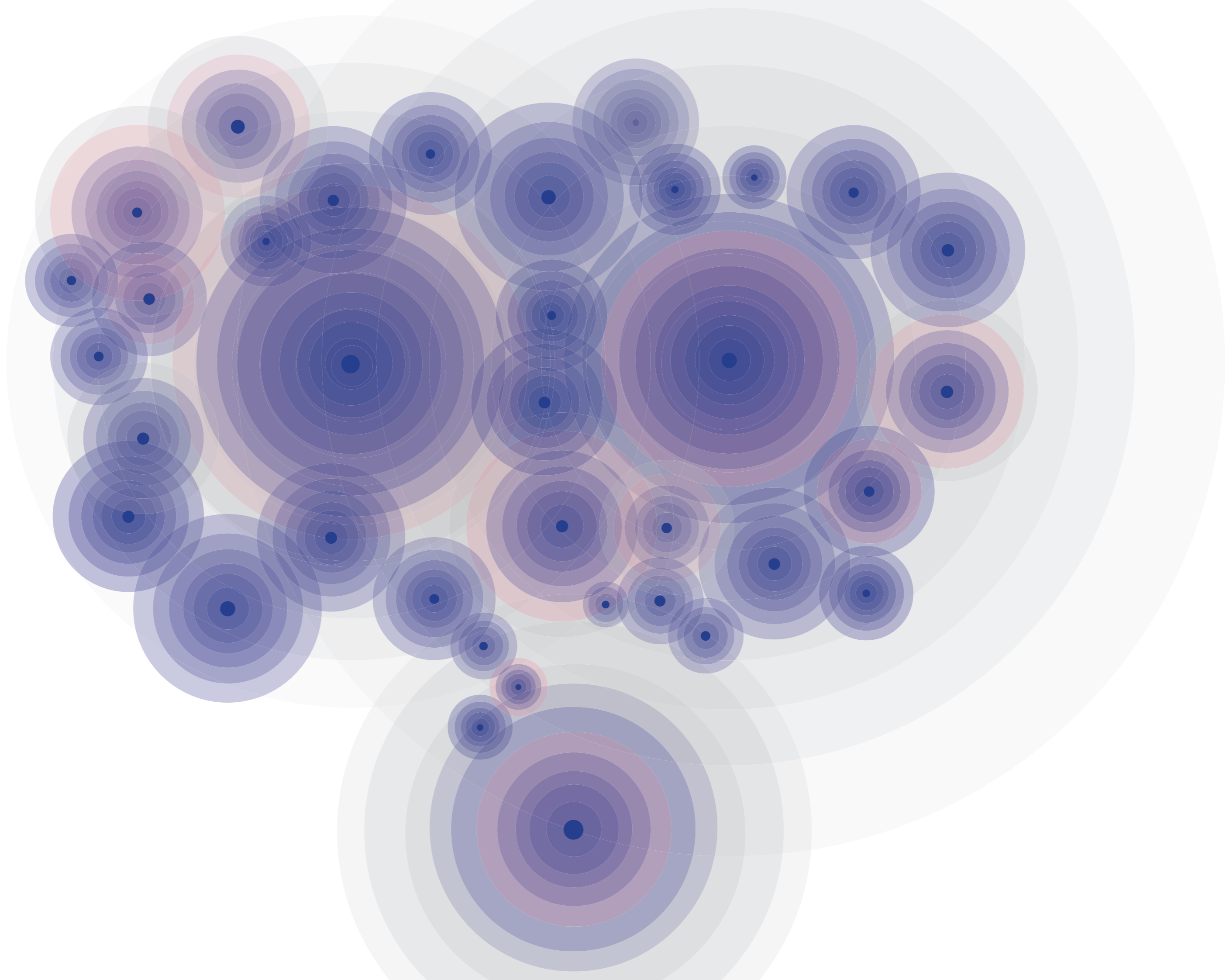
What if we had the opportunity to see our surroundings in an extraordinary way?

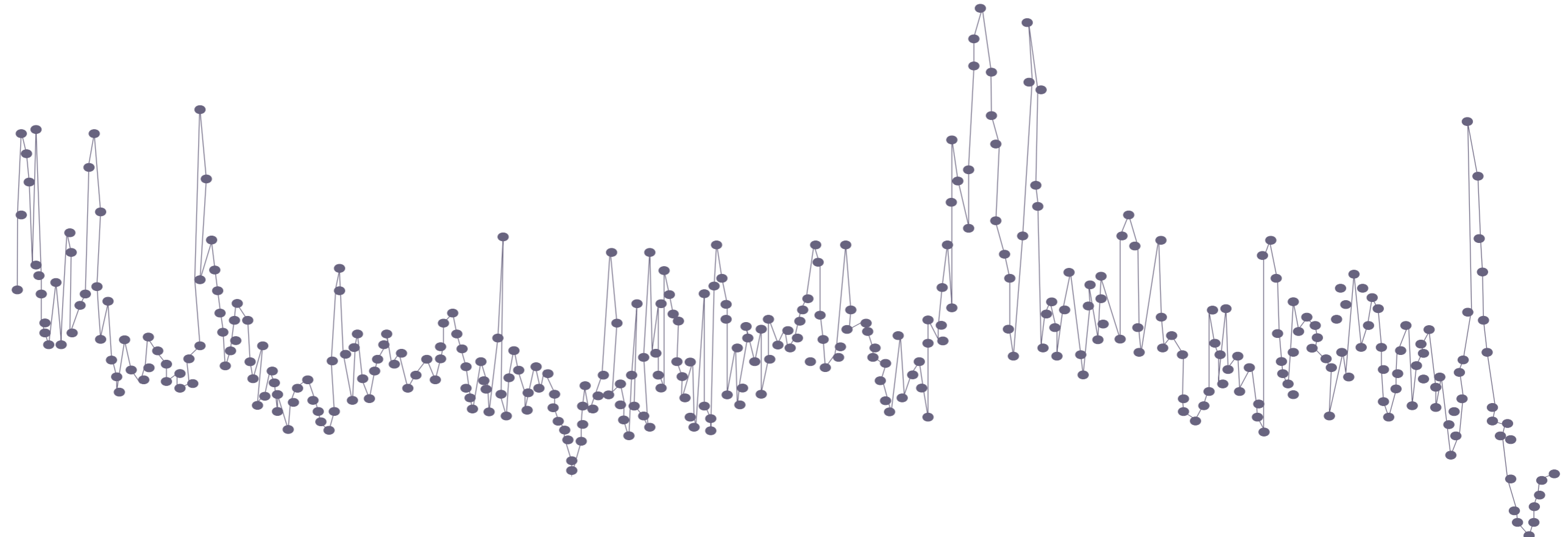
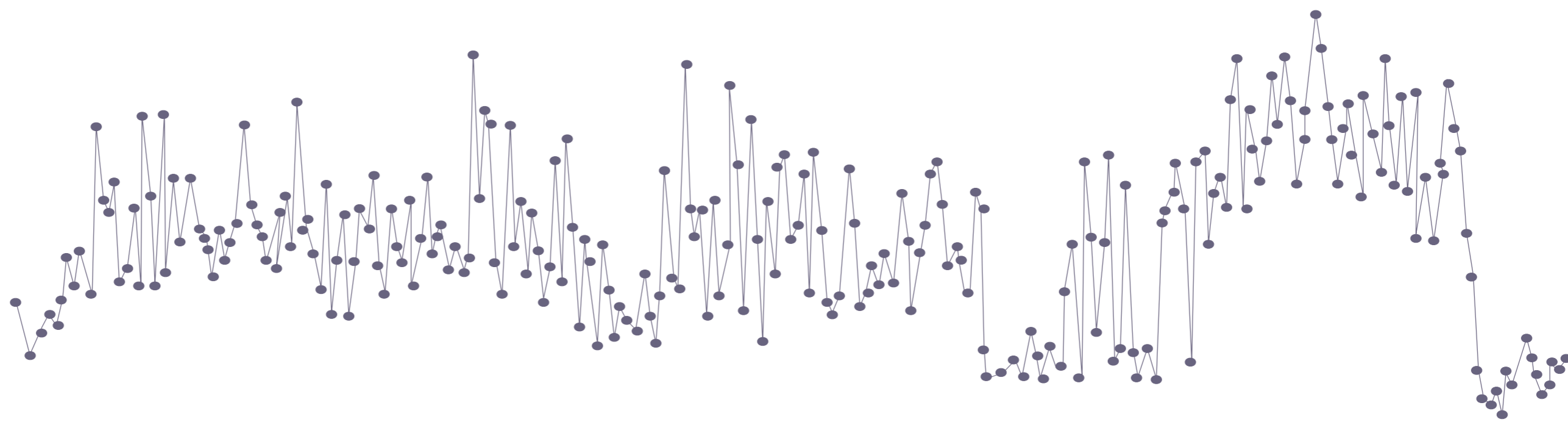
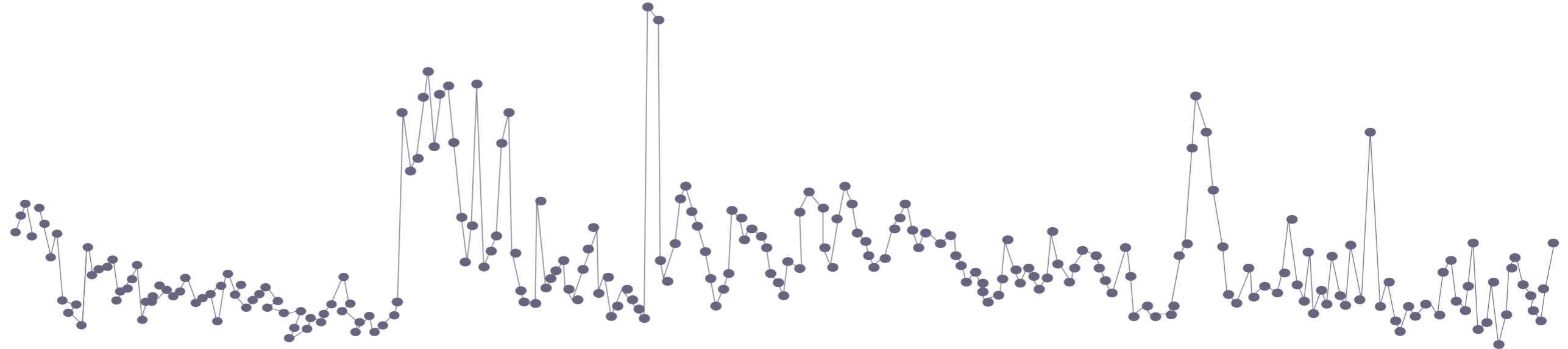
What if our senses were heightened to the point of changing our perception of space?

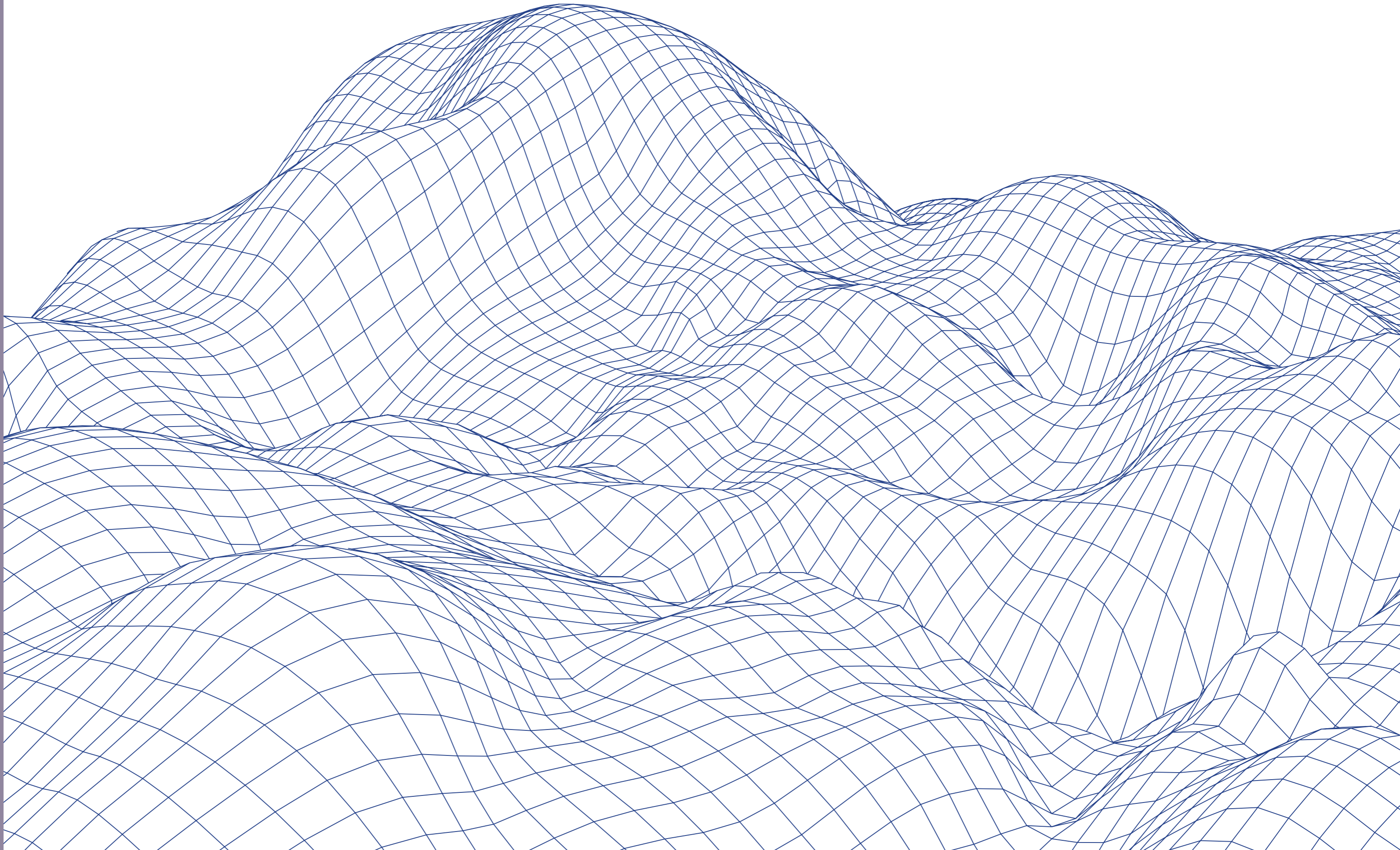
Perhaps only then can we reinvent our day to day and insert ourselves into a new reality.

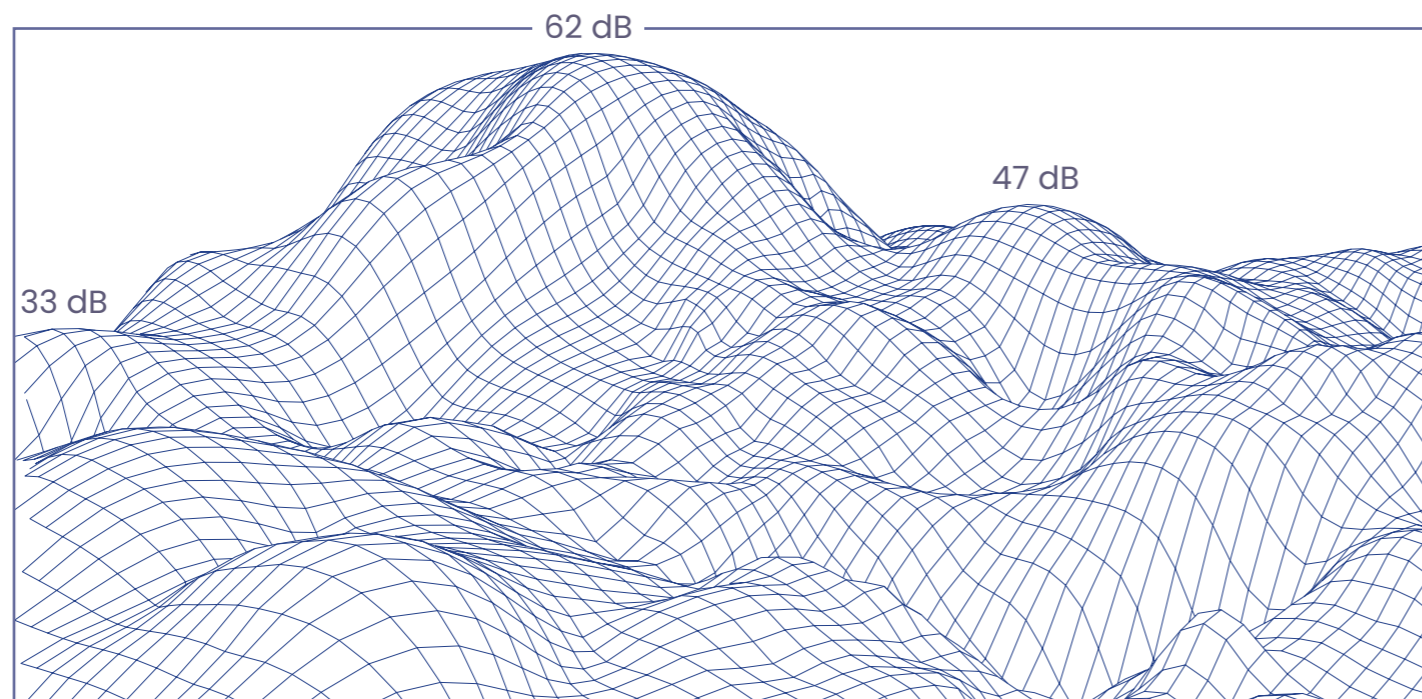
The faculty of architecture goes beyond its walls, it contains intangible energies. The fact that they are not visible to the eye does not make them any less important or extraneous to the building. In this chapter, we will discover a new narrative about the atmosphere of the faculty through senses beyond sight. With representative architectural elements such as a floorplan, section and perspective, we reorganize the building as if it were a large wave of sound and light energy and not just a material structure.

The chosen technique to map these waves was to drift inside the building measuring the exact lux and decibel values, and thus dematerialize the faculty room by room. Depending on the intensity of these waves, time of day and external factors, the results could vary, giving life to a static building. This new interpretation of architecture and plans allows us to understand the faculty building in a different way.









How to see the sound perspective:

Date and time: January 18, 2023 at 16:00

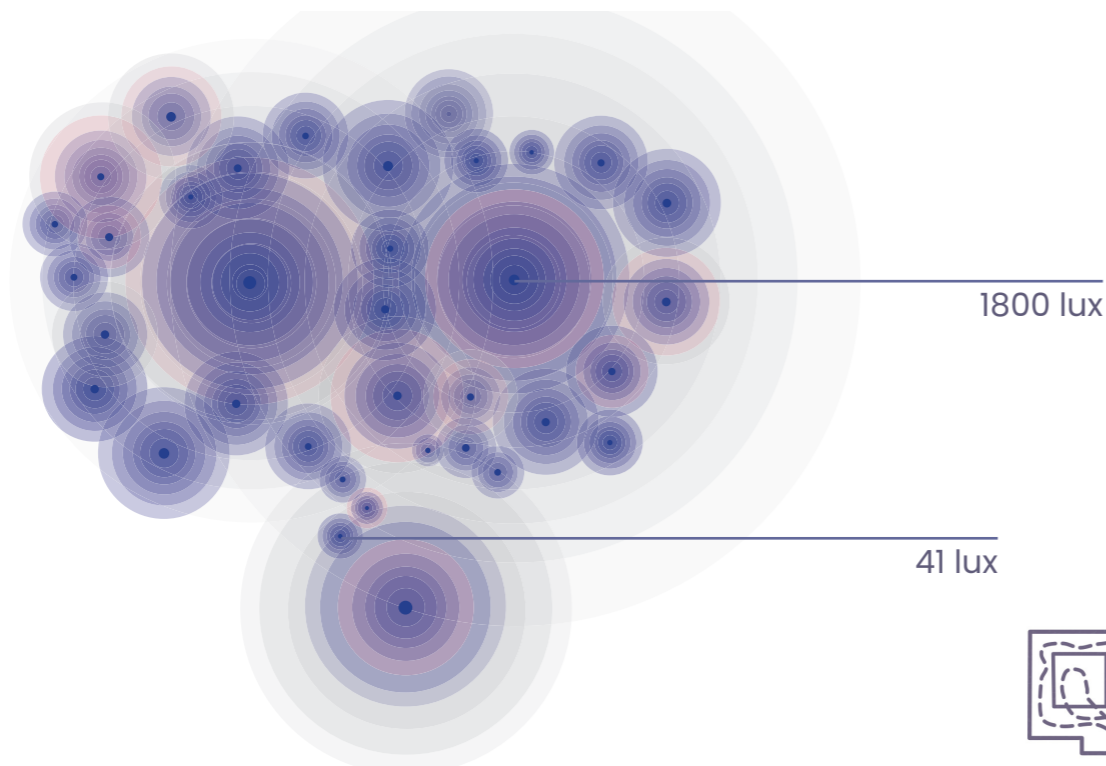
These graphs represent what we would contemplate, if the sound waves were visible to the eye, where the mesh transforms according to the decibel values in space.

In the first case, it is a perspective upon entering the main foyer on the first floor, where the curvatures of the mesh portray students conversing in front of the auditorium door about to enter.

The second case is a perspective of the inner courtyard on a windy day. With a notable difference within the wooden structure in the center of the patio that prevented or diminished the passage of sound.



Sound Perspective

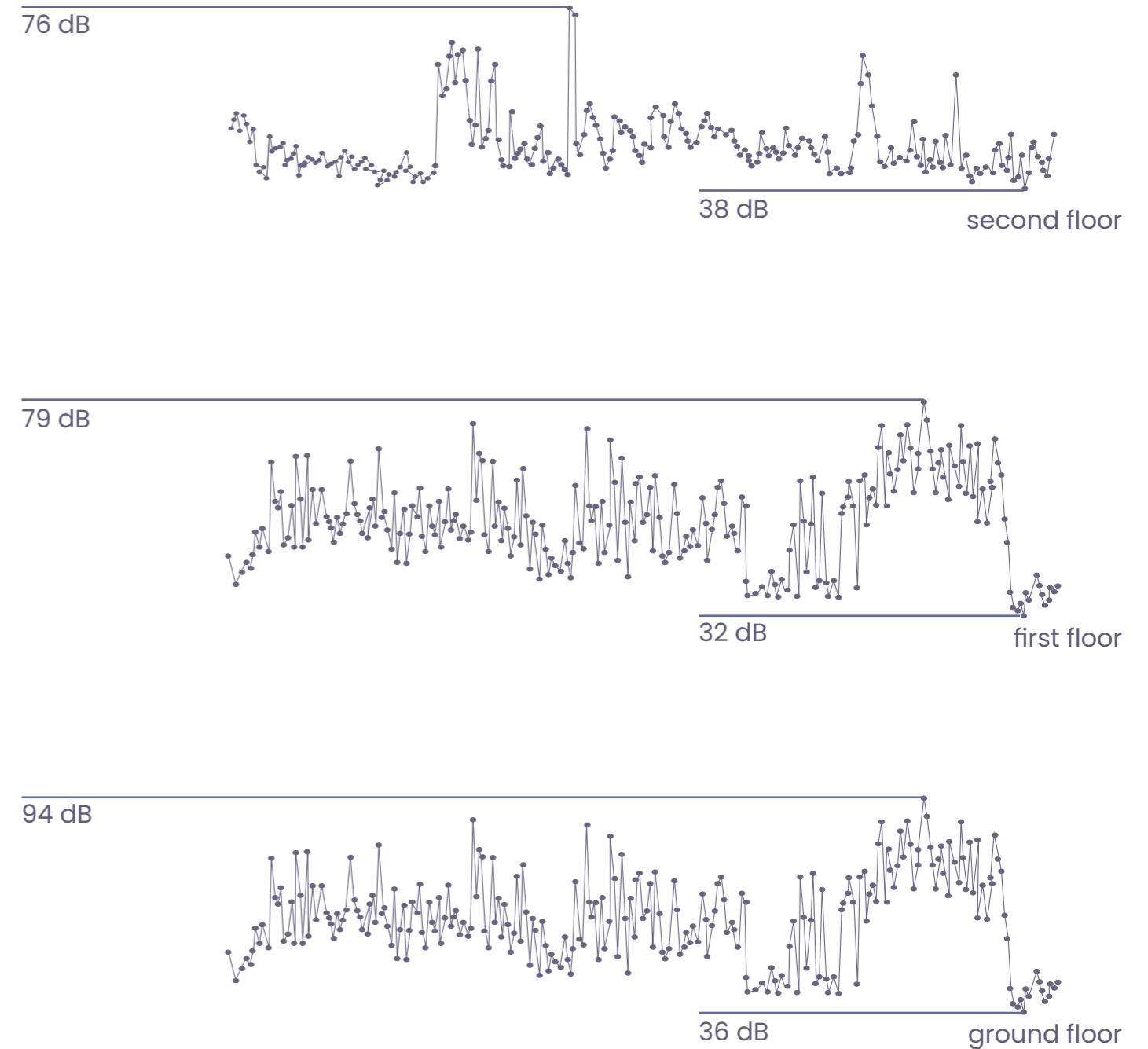


Visible Waves

How to read the luminance floor plan:

Date and time: January 10, 2023 at 12:00

The dots represent the route and location where the lux values were measured. The rings show the intensity of the light at that precise moment, varying in size and number depending on their position. Thus, completely omitting the limits of physical space. With a significant difference, the luminance of the interior courtyards covers a large part of the diagram, while the less-used rooms are muted/appeared. It creates a kind of hierarchy of light, and it breaks the scheme of a common floor plan.

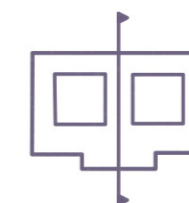


Sound Section

How read the sound section:

Date and time: December 28, 2022 at 14:00

It is a cross-section through the building, showing only the intensity of the continuous sound. The dots indicate the decibel values and the whole composition of the graph shows a new way of perceiving space on the different floors of the faculty building.



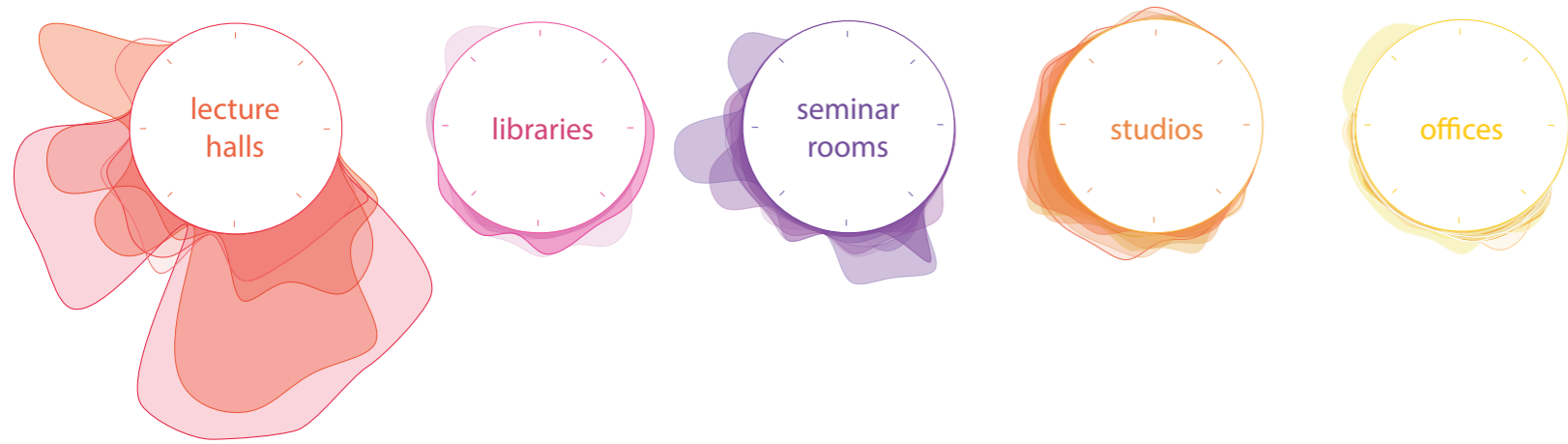
The peaks and low points of the line graph denote different situations, from doors closing to students talking in empty hallways. The boundaries of walls and ceilings fade to distinguish the magnitude of sound waves in space.

can't stop the feeling!

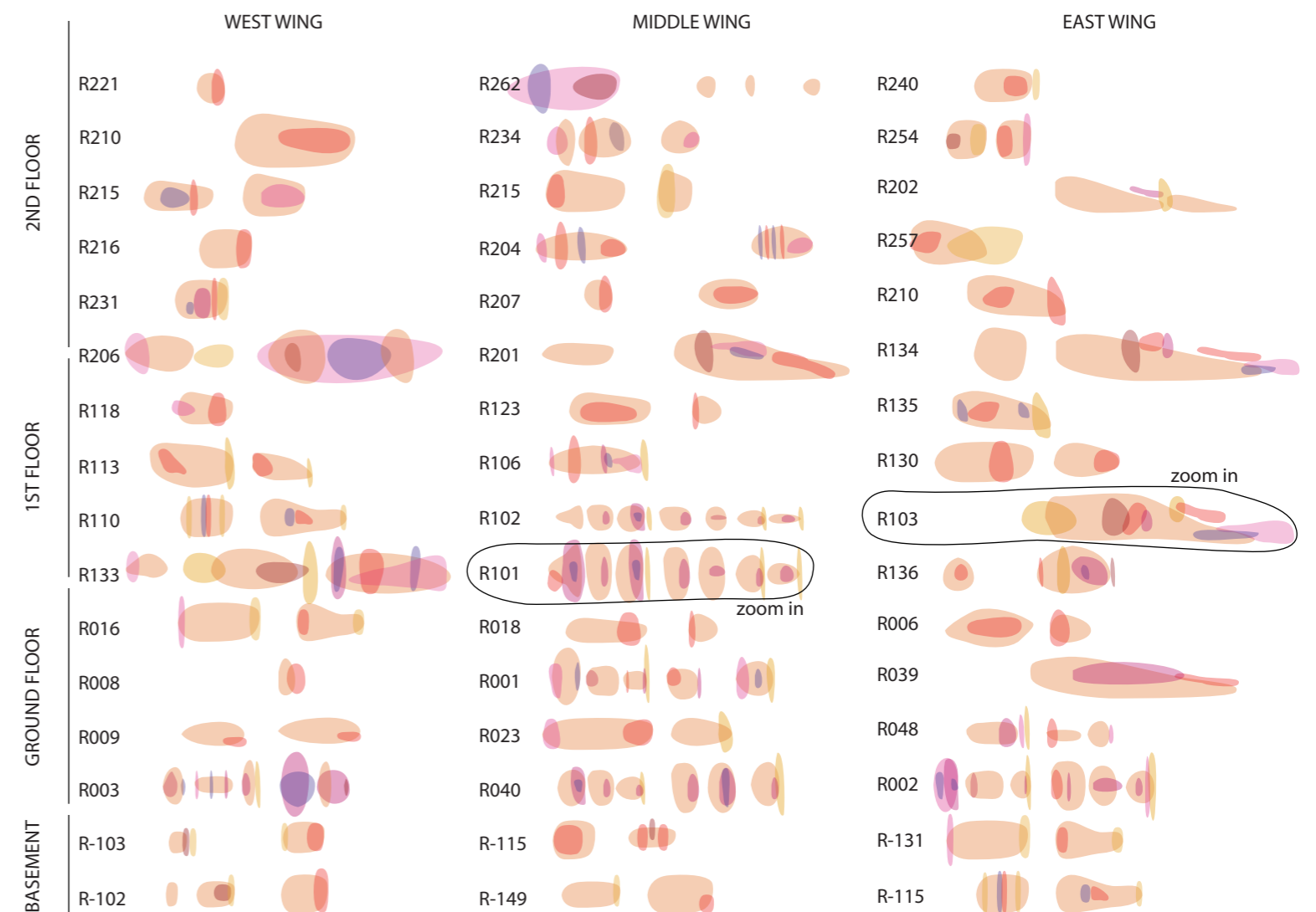
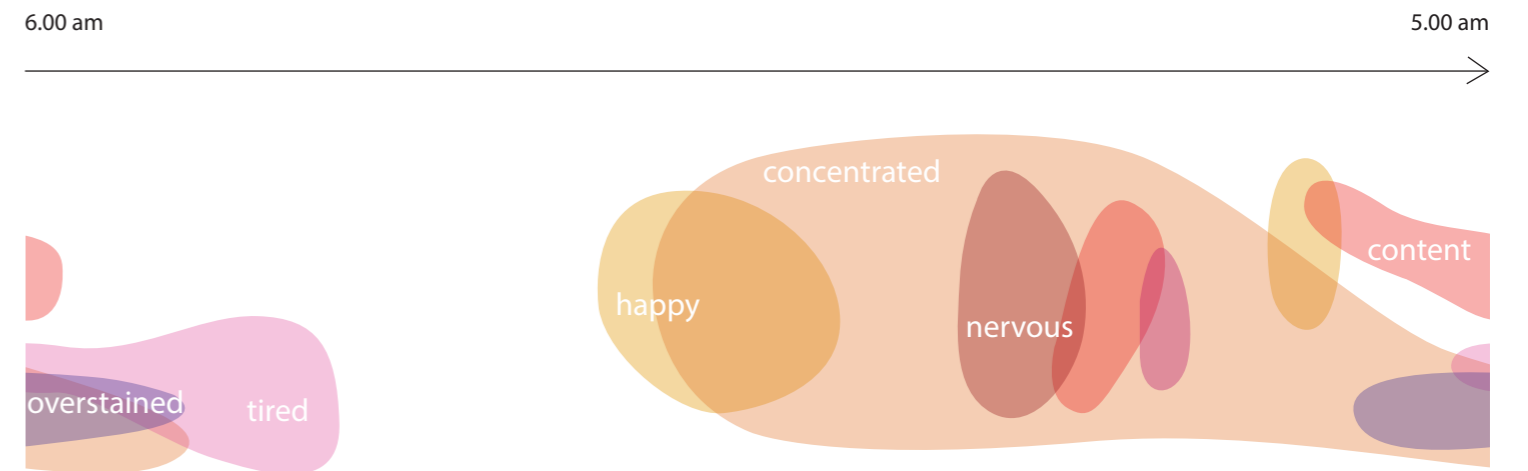
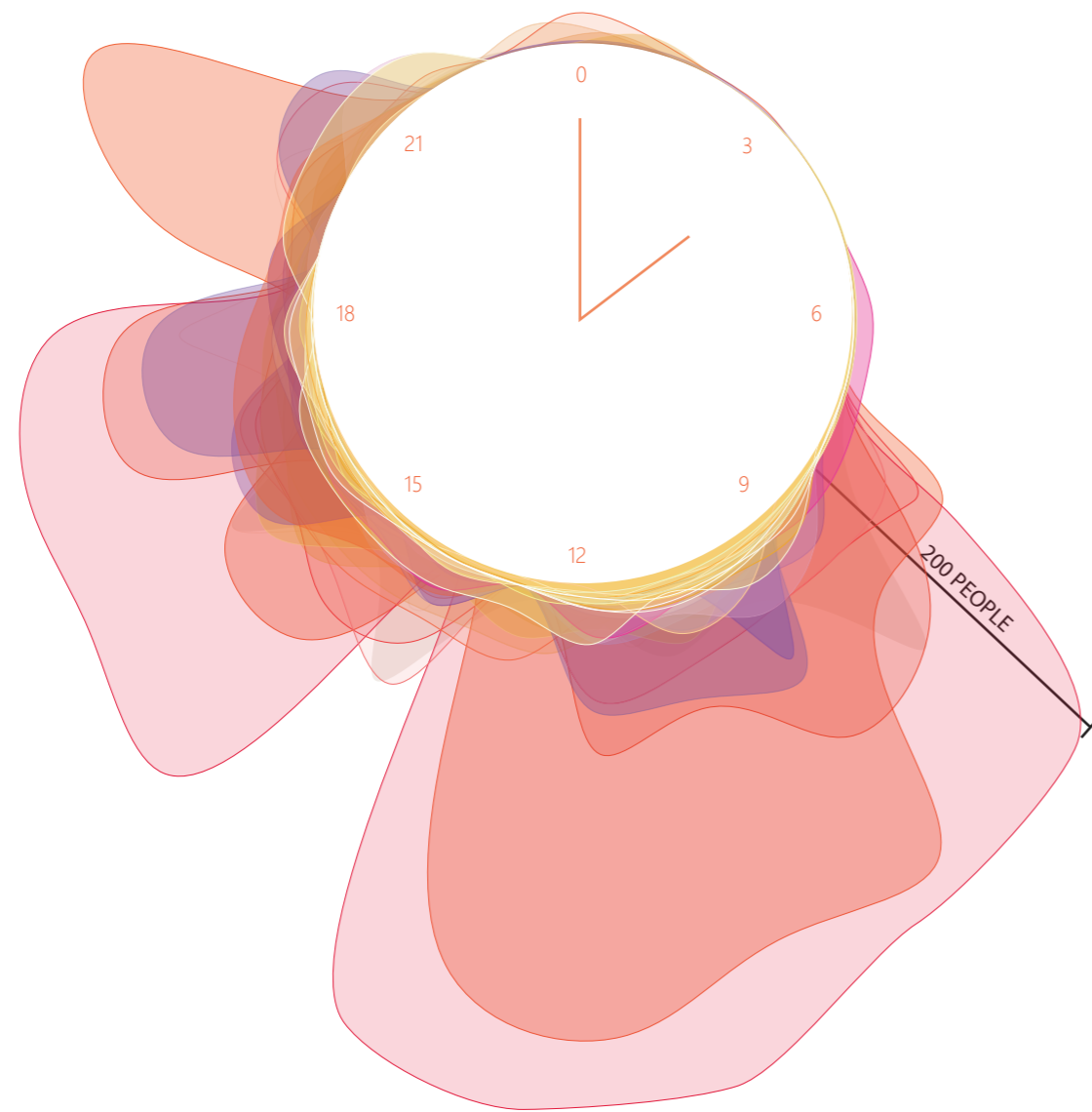


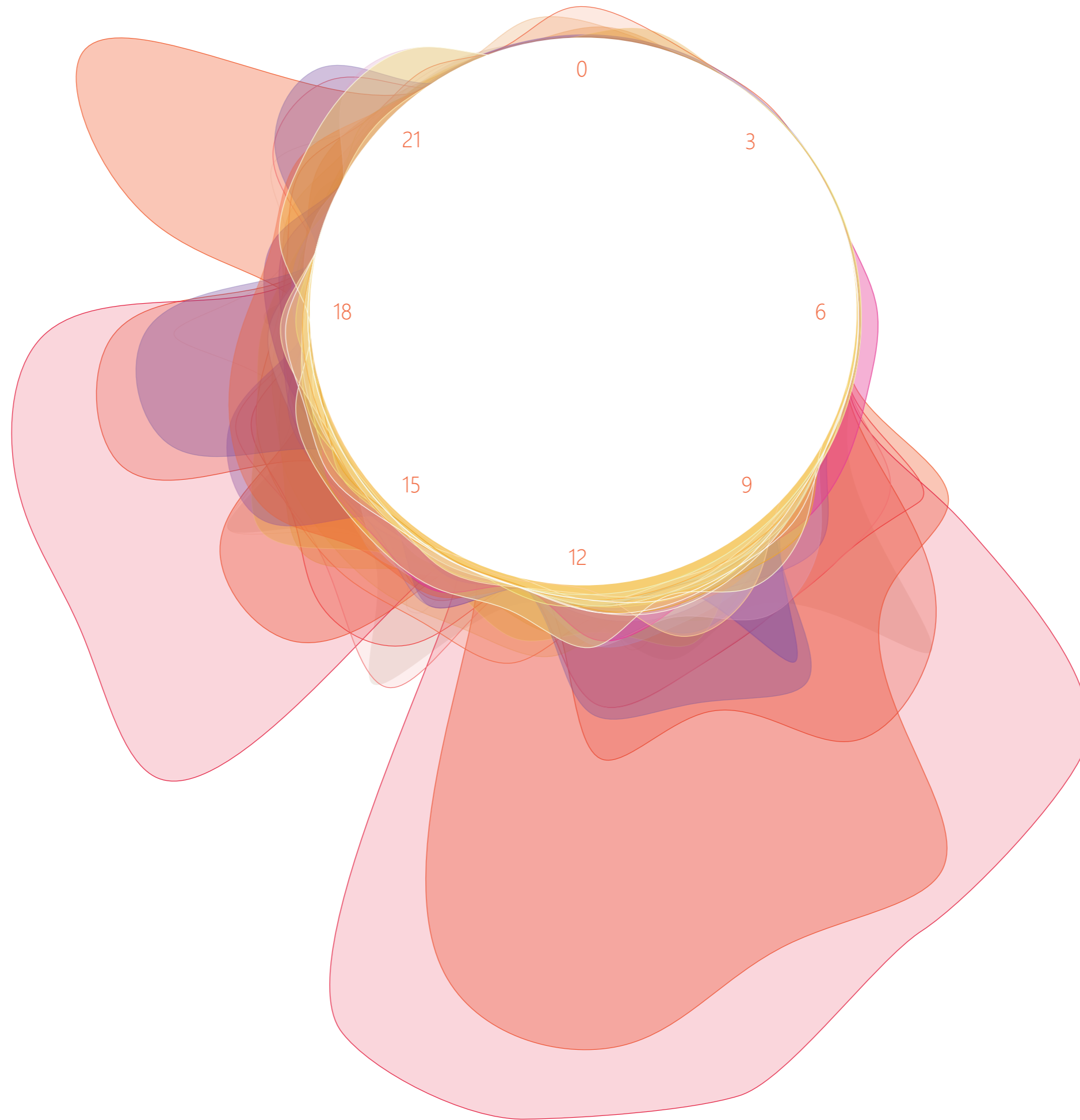
The architecture faculty, like any other building, is built with all kinds of materials like steel, bricks, concrete or glass. Materials always seem to be the main components that form a building, especially when you're focusing on architecture. But a finished building with the perfect choice of materials doesn't come to life by itself. People and their emotions bring the life into the building. They are just as important as all the structural aspects. What would be the point of an empty building? Especially when it comes to a school or college? The first thing people think about when you talk about a university are the students and the professors in it. They talk about busy hallways or a lecture hall filled with students listening to a presentation and taking notes. Throughout the day, the number of people in different rooms is constantly changing, just the way the people keep moving from room to room.

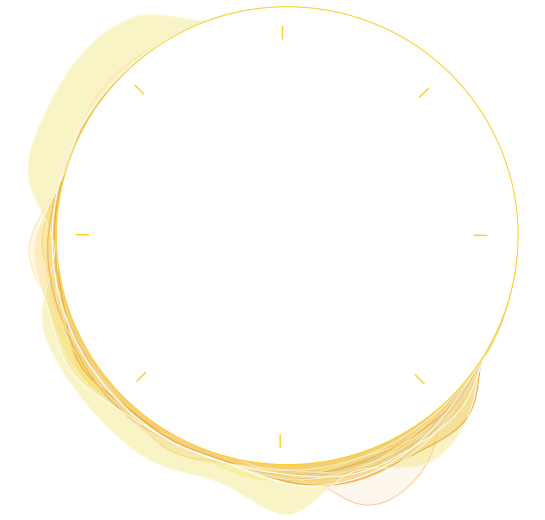
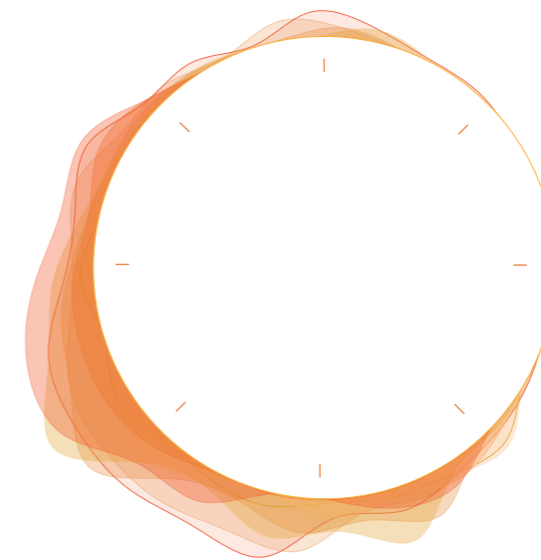
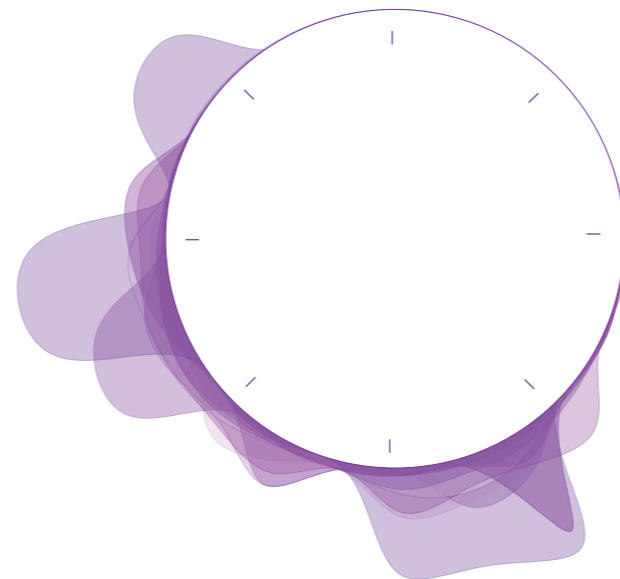
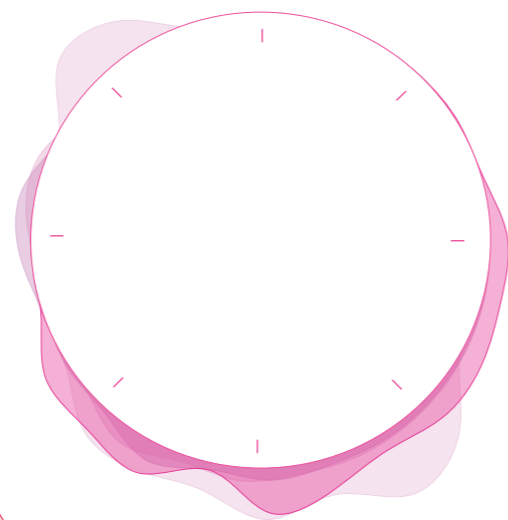
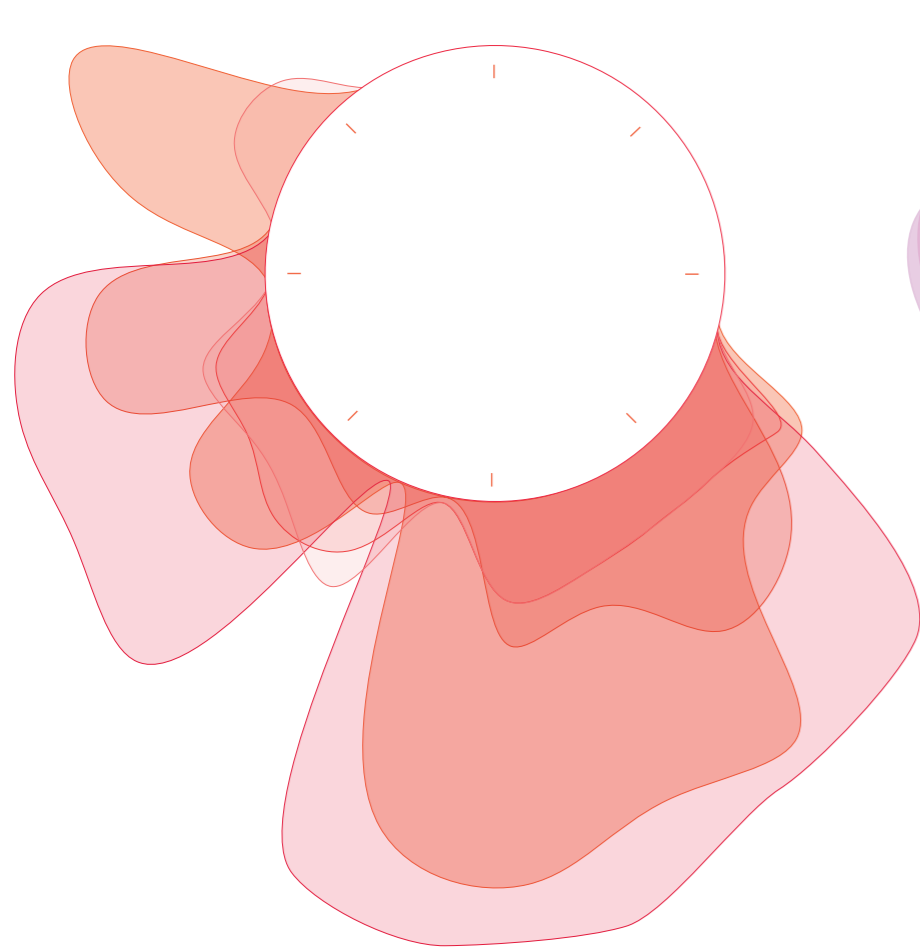
When all those people enter the building and bring life to it, their emotions become a part of the building. Unlike materials or the number of people, emotions are invisible, but strongly influence the atmosphere of a room, a hallway and even the whole building. So what kind of feelings can you find in an architecture faculty? How are people feeling at different times throughout the day? What about the same feeling in different rooms? Collecting and visualizing the emotions of people in the faculty provides a new perspective on an invisible part of the building. The activities in a room influence the perception of the emotions, but the emotions can also be responsible for a different perception of a room. Depending on what is happening in a room, emotions form different patterns that can be arranged and recognized throughout the building. When you zoom in on a lecture hall or a studio room, it also becomes clear how important the time-factor is. The same room hosts a variety of different emotions, that can all appear in the timespan of just one single day.

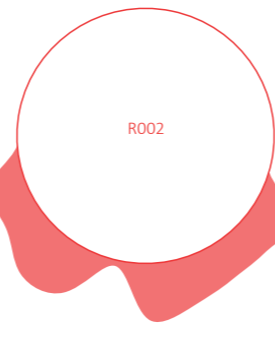
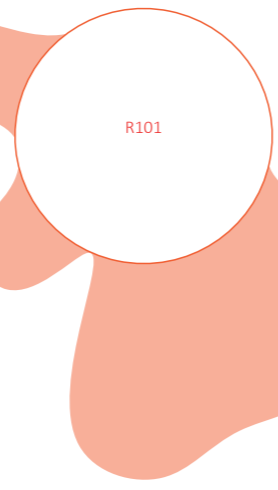
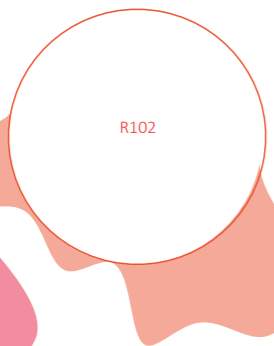
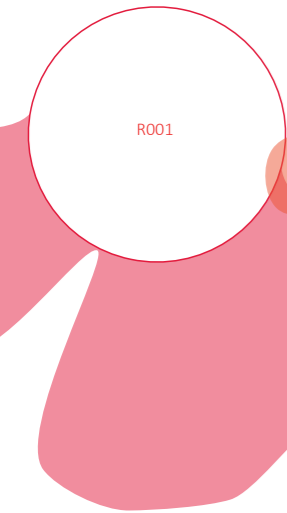
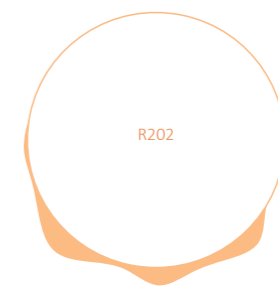
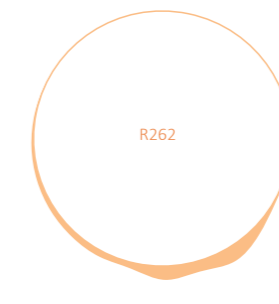
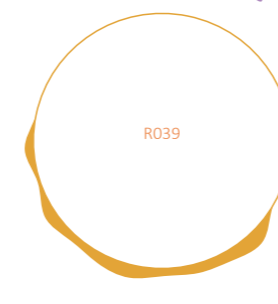
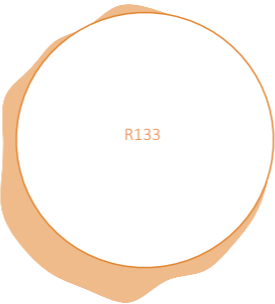
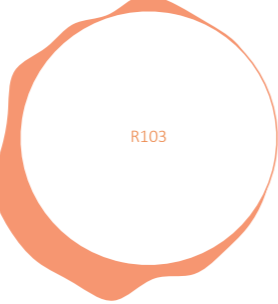
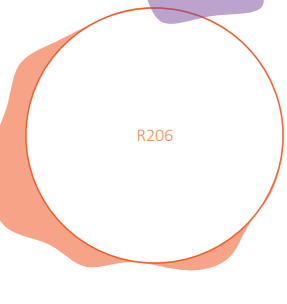
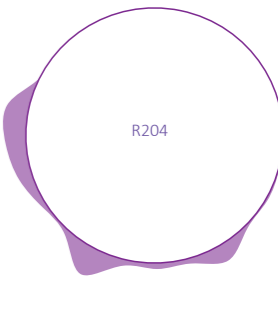
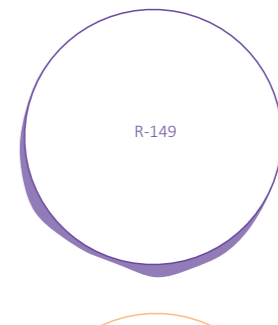
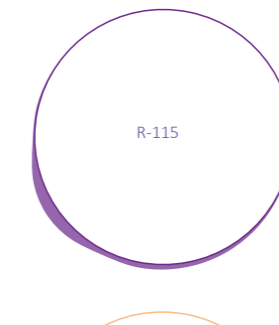
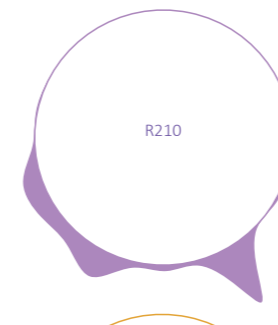
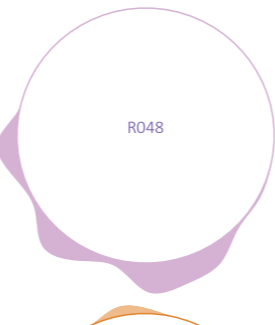
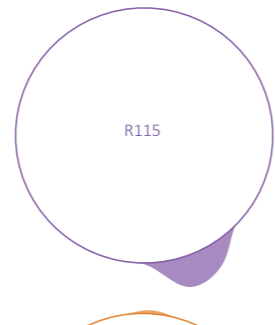
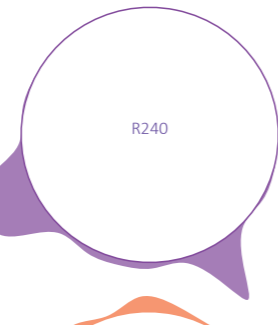
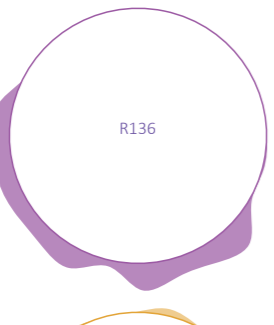
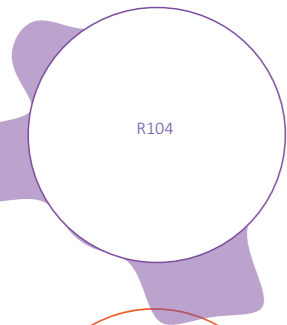
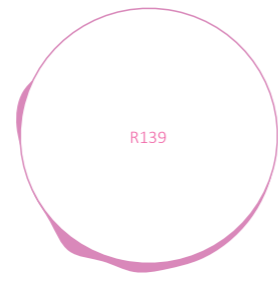
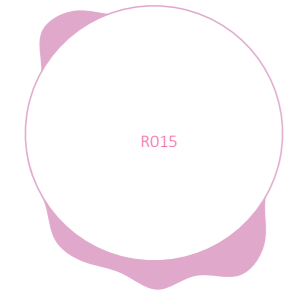
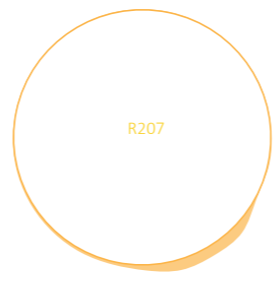
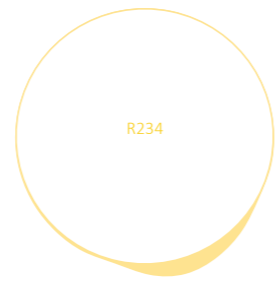
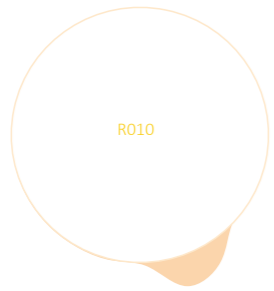
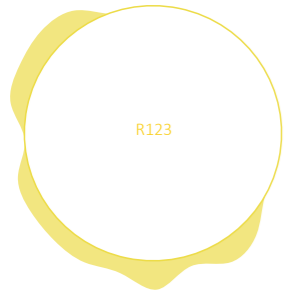
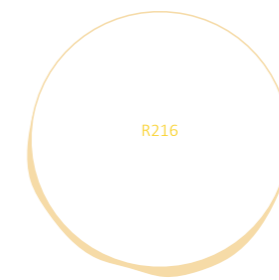
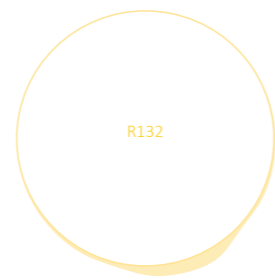
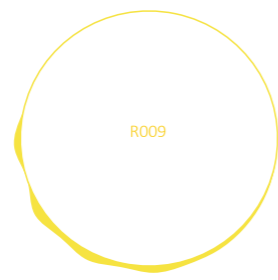
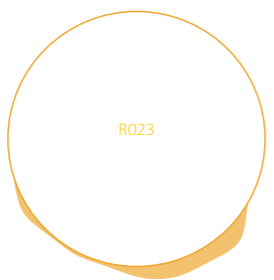
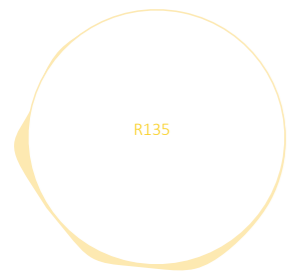


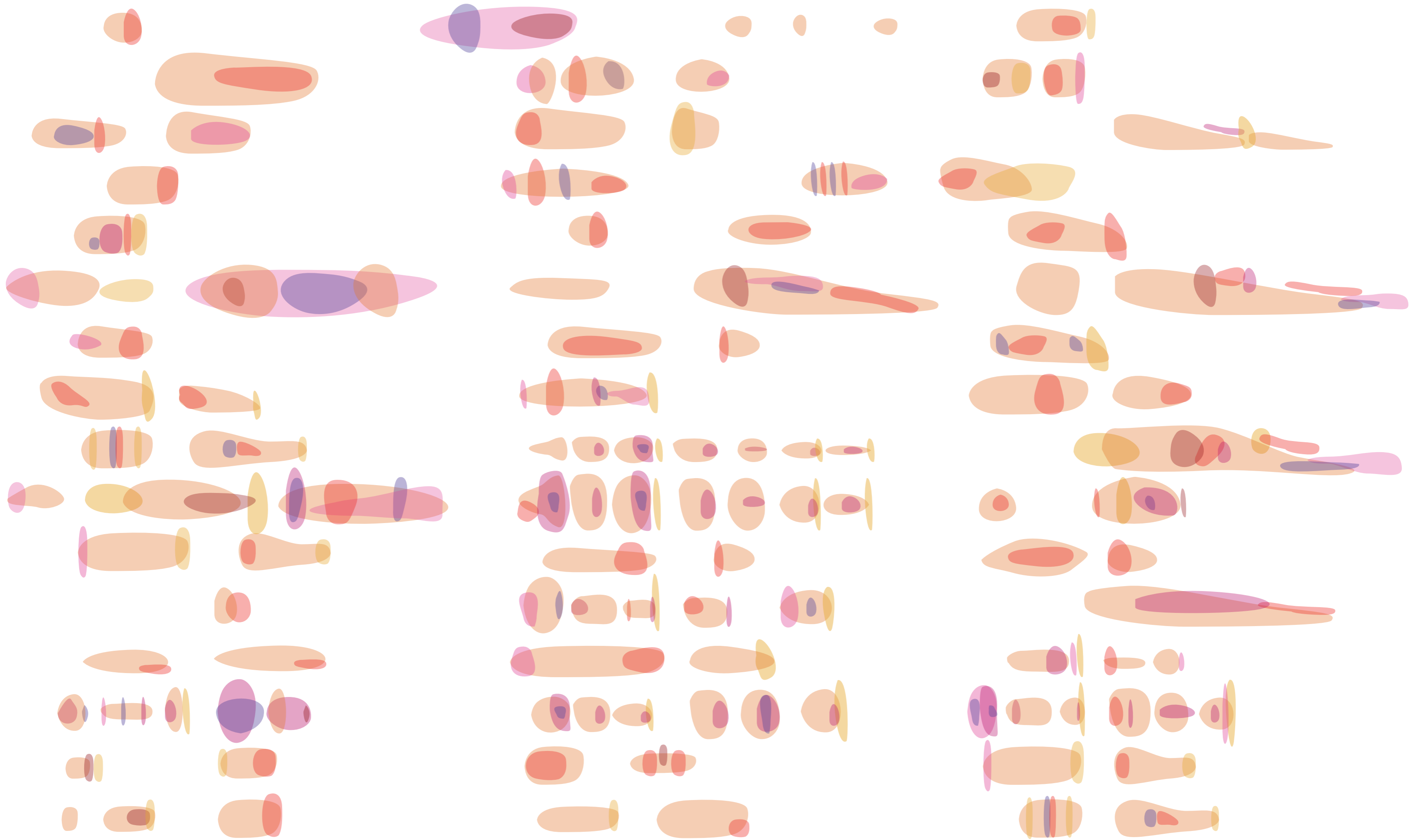
- 102 photography workshop
- 115 metal workshop
- 149 wood workshop
- 001 fritz-haller- lecture hall
- 002 jordan lecture hall
- 003 new lecture hall
- 008 student council art
- 009 history of architecture
- 016 library of building history
- 018 art history
- 006 student council geodesy
- 023 intitute for photogrammetry
- 031 geodetic institute
- 039 pc-pool
- 040 haid lecture hall
- 048 sky lecture hall
- 101 eiermann-lecture hall
- 102 lecture hall 9
- 103 bachelor studio
- 106 faculty library
- 110 building design
- 113 building design seminar
- 118 blm
- 123 art history
- 130 building and structure
- 132 building technology
- 133 masterstudio
- 135 dean's secretary
- 136 faculty-meeting room
- 139 dean of studies office
- 141 material collection
- 201 master studio
- 202 student council
- 204 drawing room
- 206 master studio
- 207 blm laboratory
- 210 ekut seminar
- 215 digital design
- 216 spatial design
- 221 architectural design
- 231 visual arts
- 234 building sience
- 240 building construction
- 254 theory of architecture
- 257 design communication
- 262 plot pool











Math lecture at 8
I'm so tired...

lunch break
... finally!

great guest lecture,
it was really interesting

last night before
the final assignment

hope we can finish
in time

the first students are
done

How can they finish
5h early

colophon

After a successful career in experimental mathematics, **Peter van Assche** transitioned into architecture and is now the founding principal of **bureau SLA**, an Amsterdam-based architecture firm focused on the necessity of transitioning to a circular economy through design. Since 2019 Peter is also professor Architecture and Circular Thinking at the Academy of Architecture Amsterdam (NL) and visiting professor at Cornell University (US). By designing, researching, inventing, and building the full potential of material use, energy, waste flows, smart living & working and development processes are discovered and implemented.

Katja Hogenboom is project architect at **bureau SLA**, researcher, and teacher. She holds a MA Architecture from the TU Delft and has worked in several offices in Spain and the Netherlands, on the design and realisation of housing and public buildings. With her own practice she built a pavilion on the roof of the university library in Leiden (NL). Katja worked for the state architect of the Netherlands on research and education. Until 2020, Katja worked as teacher (BA/MA) at the Umeå school of Architecture in Sweden. Katja's PhD research: Situated Freedom Exploring the Aesthetic Practice of Koolhaas/OMA at the KTH in Stockholm is forthcoming in June 2023.

Hanna Hoss is currently working as a teaching assistant at the Professorship Sustainable Construction at KIT Karlsruhe. At the same time she is Junior Architect at Löffler_Schmeling Architekten, an office in Karlsruhe with its main focus on climate fair architecture and residential projects. She holds a Master of Science in Architecture from the Karlsruhe Institute for Technology (KIT). For her master thesis „Pro Humla – Birthing House in Western Nepal“ she was nominated for the BDA-SARP-AWARD 2020 and won recognition of the Friedrich-Weinbrenner-Prize 2020.

Building 20.40
Material Biographies
An Emotive Exploration of Material's identity
Winter Semester 2023
Karlsruhe Institute of Technology

Teachers
Peter van Assche, Katja Hogenboom,
Hanna Hoss

Students
Aline Lang, Amélie Giraud, Annabelle Ebener, Annika Brendle, Erdogan Ilker Incirci, Gordon Buxton, Hanna Bederke, Joachim Kausch, Ines Barrinso, Jasmine Parraga, Karla Jukić, Kevin Schulz, Marta moro, Mirjam Dürr, Nicolas Astudillo, Rebecca Steinbach, Simone Uschold

All presented work is made by architecture students at Karlsruhe Institute of Technology (KIT).

Print
NINO Druck GmbH, Neustadt/Weinstraße

This is a publication of the Karlsruhe Institute of Technology, in cooperation with bureau SLA, Amsterdam, and was made possible by the Sto Foundation, Berlin.

Karlsruhe Institute of Technology
Englerstraße 7
76131 Karlsruhe
Germany

This work is licensed under Attribution 4.0 International. This license requires that reusers give credit to the creator. It allows reusers to distribute, remix, adapt, and build upon the material in any medium or format. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>



bureau **SLA**
we are architects





material biographies:
an emotive exploration of
material's identity

building 20.40
material biographies:
an emotive exploration of
material's identity

building 20.40
material biographies:
an emotive exploration of
material's identity

building 20.40
material biographies:
an emotive exploration of
material's identity

with contributions of:
Aline Lang
Annelle Giraud
Annabelle Ebener
Anika Brendle
Erdogan Ilker Incirli
Gordon Buxton
Hanna Bederke
Joachim Kausch
Jasmin Paraga
Karla Jukic
Kevin Schulz
Marta Moro
Mirjam Durr
Nicolas Astudillo
Rebecca Steinbach
Simone Uschold

editors:
Peter van Assche
Katja Hogenboom
Hanna Hoss

editors:
Peter van Assche
Katja Hogenboom
Aline Lang
Annelle Giraud
Hanna Hoss

with contributions of:
Aline Lang
Annelle Giraud
Annabelle Ebener
Anika Brendle
Erdogan Ilker Incirli
Gordon Buxton
Hanna Bederke
Joachim Kausch
Jasmin Paraga
Karla Jukic
Kevin Schulz
Marta Moro
Mirjam Durr
Nicolas Astudillo
Rebecca Steinbach
Simone Uschold

with contributions of:
Aline Lang
Annelle Giraud
Annabelle Ebener
Anika Brendle
Erdogan Ilker Incirli
Gordon Buxton
Hanna Bederke
Joachim Kausch
Jasmin Paraga
Karla Jukic
Kevin Schulz
Marta Moro
Mirjam Durr
Nicolas Astudillo
Rebecca Steinbach
Simone Uschold

editors:
Peter van Assche
Katja Hogenboom
Hanna Hoss