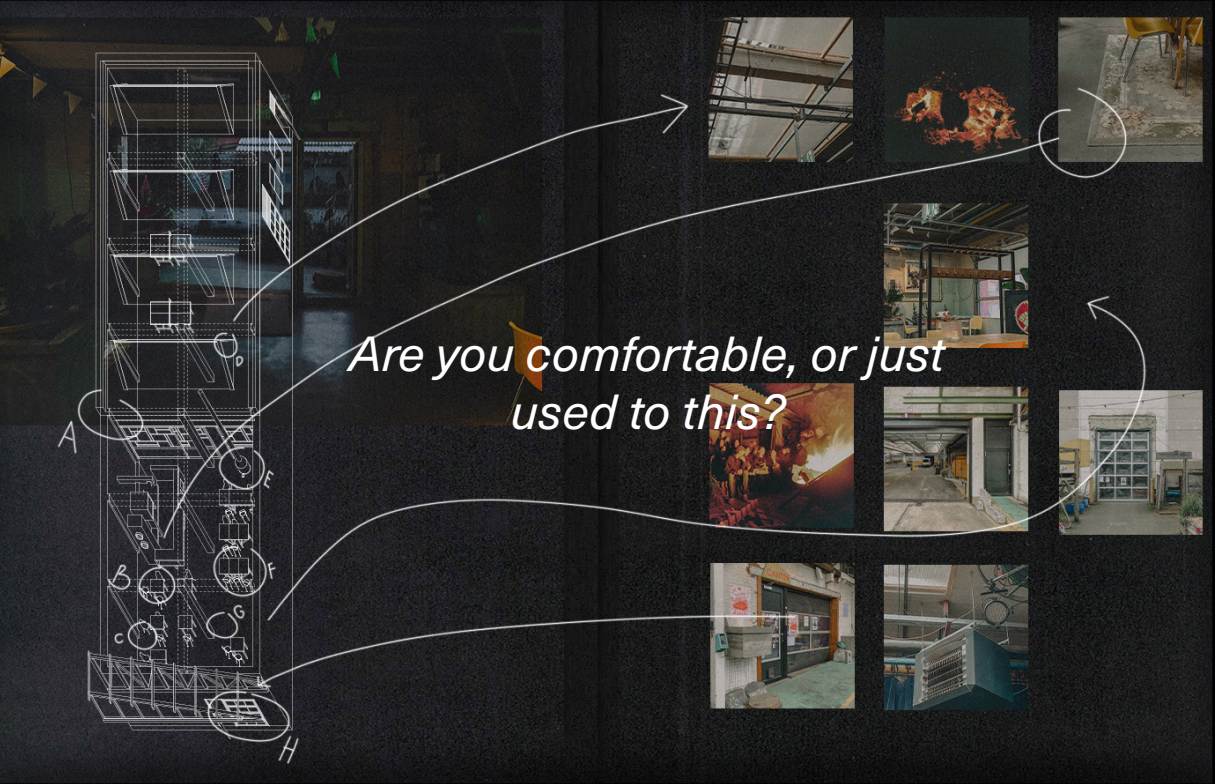
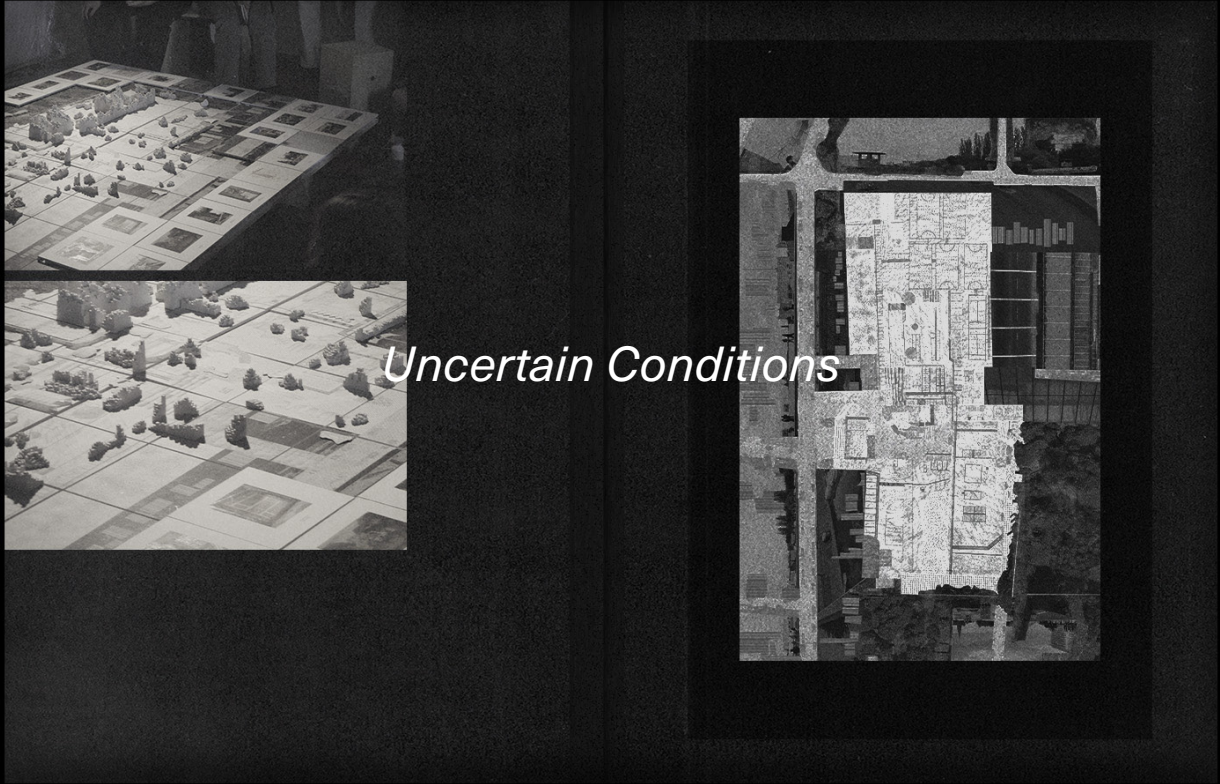


# Gradients of Comfort





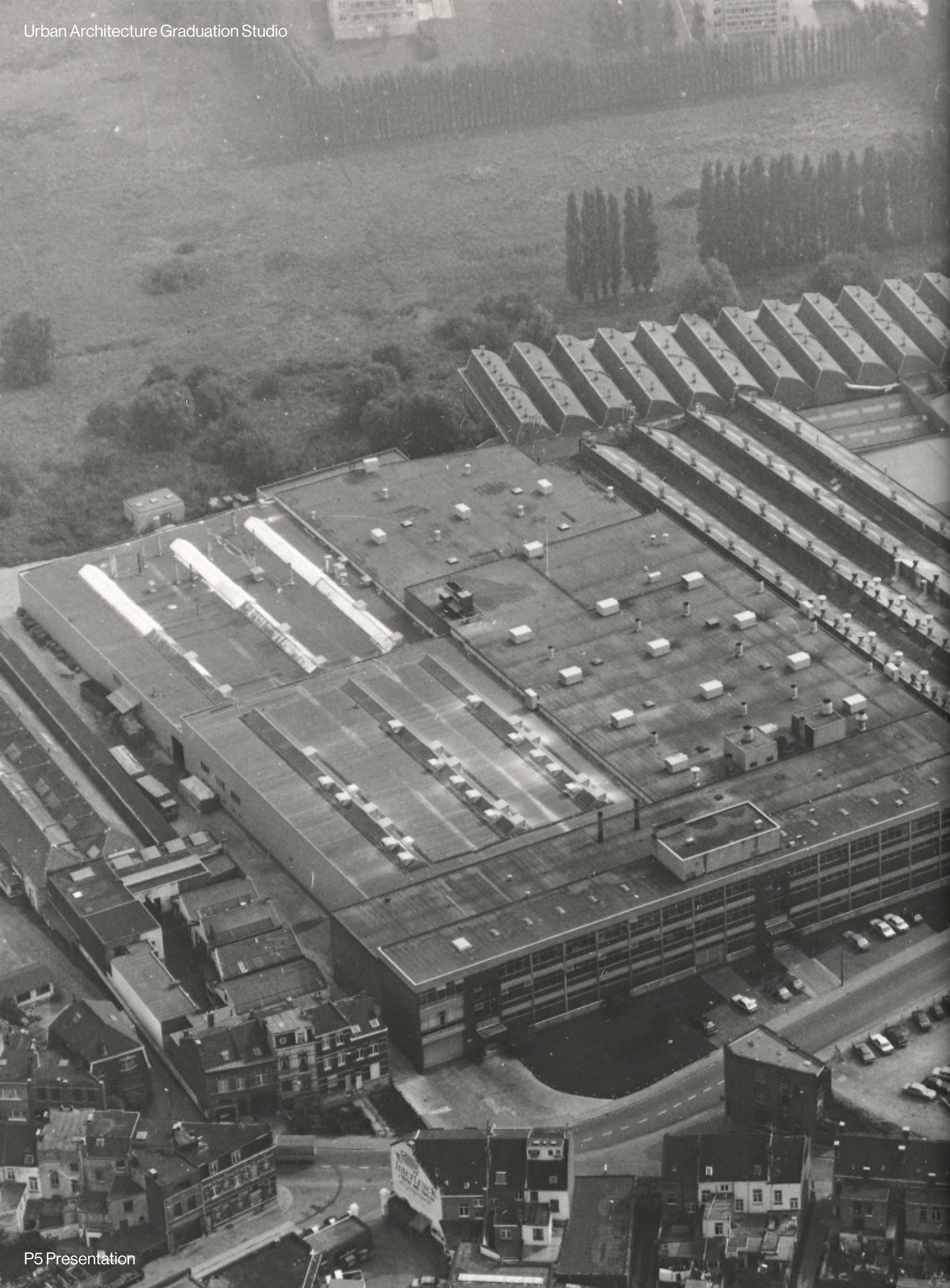












Die boeren verbliven hun in sulken feesten Al te dansen springhen en droncken  
Sy moeten die kermessen onderhouden en vassen en steruen va





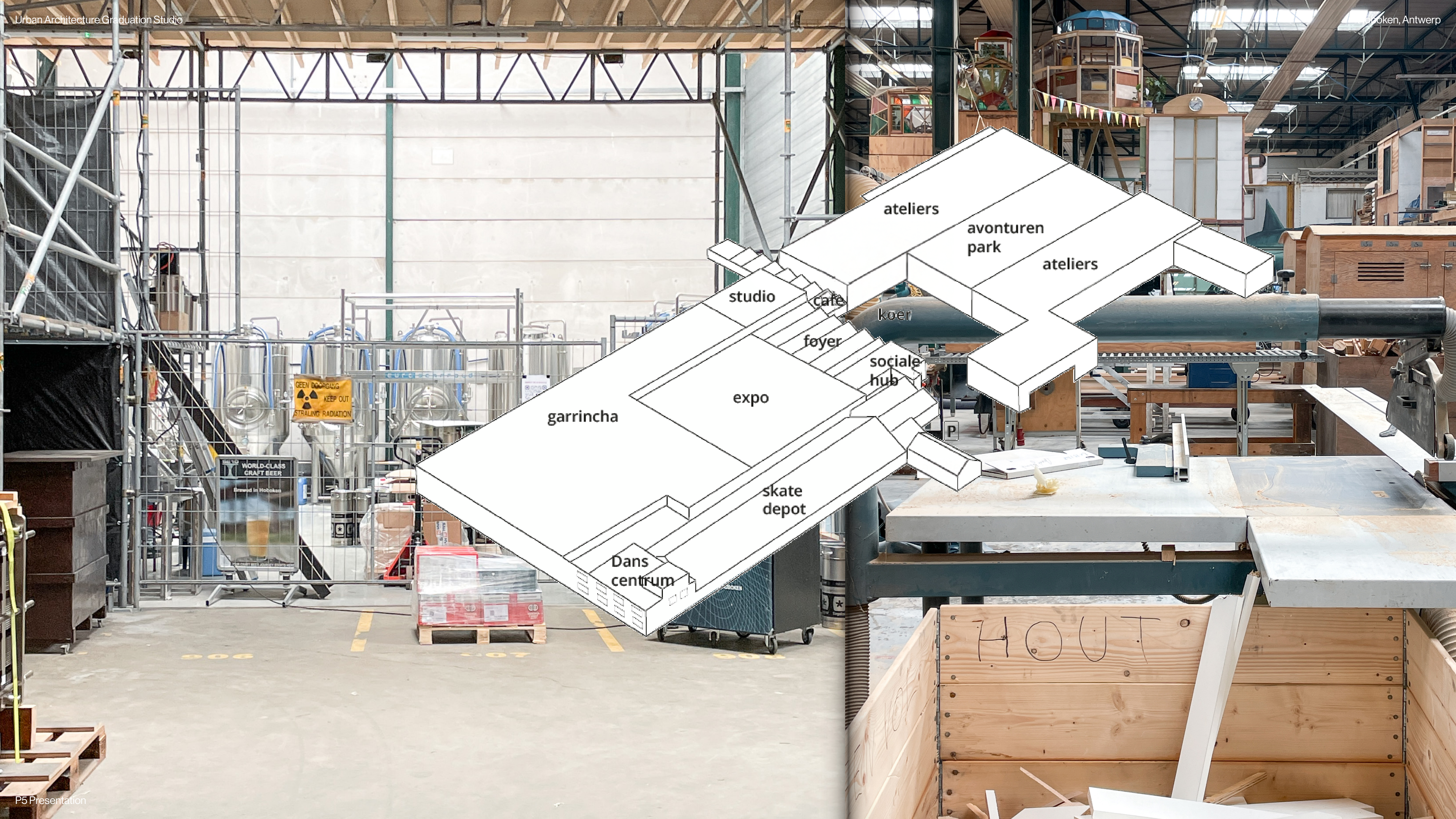












ateliers

avonturen  
park

ateliers

studio

cafe

koer

foyer

sociale  
hub

expo

garrincha

skate  
depot

Dans  
centrum

HOUT



# Urban Architecture

MSc 3/4 - Low Town Downtown



Antwerp. Photograph by Rosie van der Schans

Tutors

Paul Vermeulen  
Elisbeth Ronner  
Leeke Reinders  
Eireen Schreurs  
Sam Stalker  
Rosie van der Schans

Code	AR3UA100
Credits	55 ECTS
Location	Antwerp (Belgium)
Excursion	Yes
Costs	t.b.d.

At the chair of Urban Architecture we study medium-size urban sites that are inaccessible for the regular tools of urbanism, and where expectations of urban design can only be fulfilled by an architectural project. Adding a building thus means (re)designing an environment, both socially and physically. As we realize that in contemporary cities opportunities for collective and personal fulfillment are unevenly spread, we choose to intervene in those urban areas where these opportunities need strengthening.

As no urban sites are ever blank, our studio investigates their resources: the traces of histories in buildings and soils, the various social patterns installed in the urban realm, the material stocks available for reuse, their other than human inhabitants and their ecological connections to larger landscapes. Our studio designs on-site research methods to capture and picture the depths of an everyday place.

For this, our studio heads for Antwerp, to the south of the now rapidly developing New South area, into the patchwork of Hoboken, where medium-scaled industries, social and middle-class housing experiments and preserved polder landscapes make up an intricate testimony of twentieth-century city-in-the-making. A half-way-city, as scholars Michiel Dehaene and Annette Kuhk have labelled it: a place well on its way to shake off its suburban origins, holding in its disarray a promise of some new sort of urbanity

striking the delicate balance of inhabitation, productivity, community and ecological resilience the traditional centre has forfeited.

Lage Weg (Low Road) is an area of terraces, slabs, schools, parking lots, gardens, wasteland and industries, some in decay, others hoping for expansion. Blue Gate, a new industrial park, and the Hobokense Polder, an extensive nature reserve on the banks of river Scheldt are within its reach. Awaiting sanitation of its polluted soil, it has become in recent years a testing ground for new urban policies and more cautious ways of urban development, steered by dialogue between its various stakeholders.

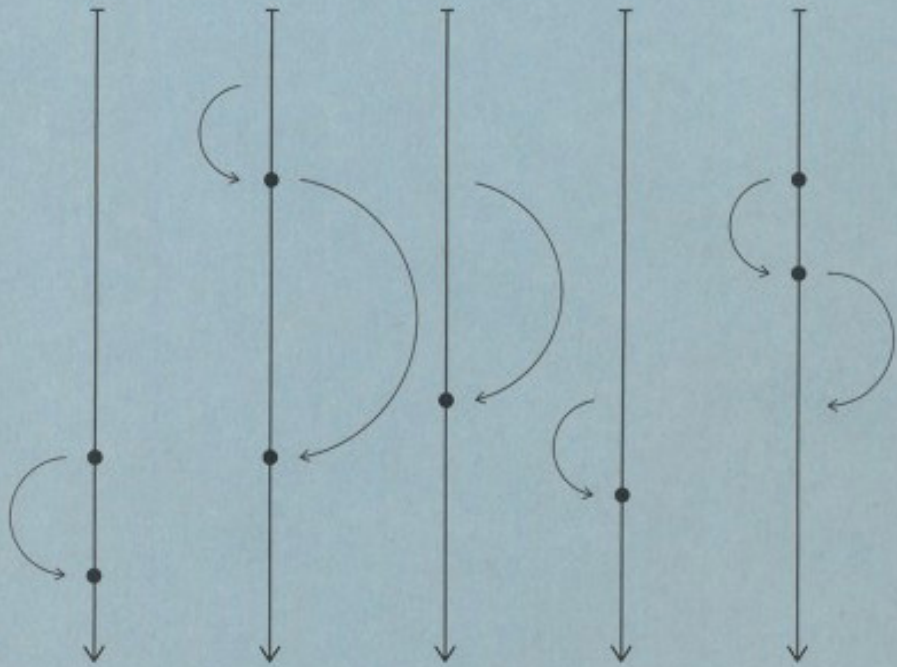
As a result, it has become a place of high hopes, fueled by temporary occupations invited by municipal policies. Lage Weg became an insider tip for all Antwerp citizens, with its factory halls invested by cultural and counter-cultural events, circular manufacturers, leisure and entertainment. Its pioneering temporary users cast light on the possible futures this place can have, and prefigure the urban vocation of the half-way city. But for how long still? Pioneers are expected to soon give way to more definitive tenants. Will their spark of civic liveliness and outward centrality survive the subsequent waves of investments to come? This tension, typical for many future developments, is the central issue of this studio: how to make Low Town last as a downtown?

Autumn semester 2024





LABO XX  
Pilootproject de Lageweg



The Lageweg as broad  
learning environment

Koen Bastiaens — city of Antwerp

What can education mean for the future of the Lageweg? Thanks to the presence of three schools on the Lageweg, there are a lot of opportunities to be seized. The challenge consists in using that presence optimally and integrating it in the overall concept. This implies that the schools have to be involved in the process from the start.

A few years ago the city authorities approved a mission statement about the 'broad learning environment'. The city authorities argued that a school must be much more than just a school. In a broad learning environment, a school is firmly rooted in the local environment. Thanks to an intensive collaboration with the surroundings — i.e. parents, friends, organizations, sports clubs, businesses, etc. — optimal development opportunities are created for children and youths.

A learning process never unfolds linearly, but by 'zapping' between different sources of information and experience, but especially also in networks. A better balance must emerge between the 'school learning process' and 'natural learning', where passions grow by doing. There is therefore a need for meeting places where children and youths can work on their personal development. We must invest in a mix of training methods so that training can occur in various ways and at various places: together and individually, in supervised sessions and autonomously, at home and at school, on- and offline, and both during school and non-school moments of the day and week.

To bring about a broad learning environment we had best start out from what is already available. The content of the Lageweg lends itself well to the creation of a broad learning environment. Not only are there three schools already, but the site also offers opportunities to build up additional educational infrastructure. The introduction of a large school building with professional courses on the other side of the railway — and therefore de facto outside

the project area — must be taken into account in the overall concept.

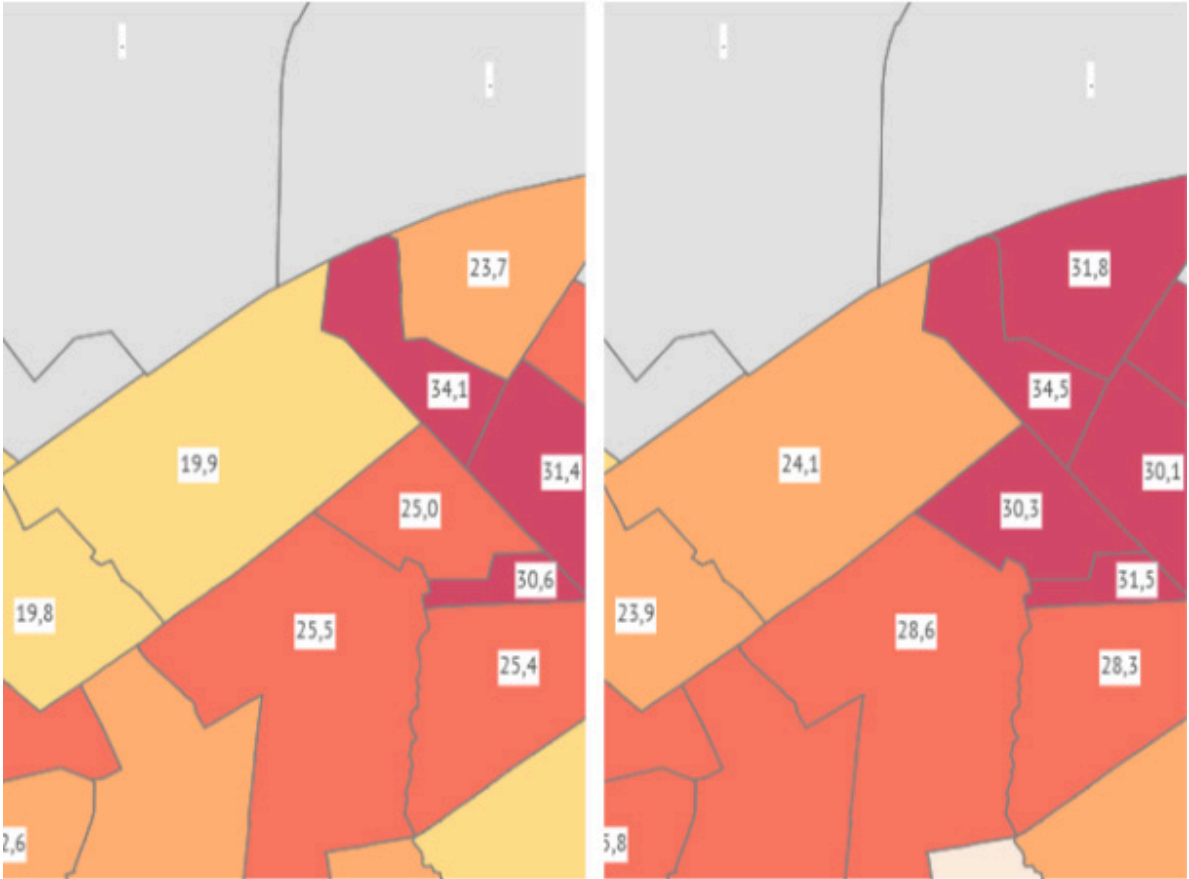
But there is more. The current industrial buildings can be assigned a new function as a learning environment. They offer shelter and invite creativity. The open space on the site and the new public spaces can also contribute to a pleasant and broad school environment. By extension, we can consider the entire site (and the neighbourhood) as a broad learning environment, where the various functions on the Lageweg can blend into one another. The site offers children and youths the chance to withdraw in small groups or individually, to hang around, to sit or to work. Play areas, galleries and passages offer opportunities to learn, exhibit, move, meet, etc.

Important points of attention in this regard are the sharing and multiple use of space and infrastructure. Classrooms and studios can, for instance, also be used by businesses, employees or youth workers. The sports infrastructure, the playground, the classrooms and the studios of the schools do not need to be empty after school, but can be used by associations and private individuals.

The presence of industry offers an important potential. Thanks to the ambition to maintain and reinforce industrial activity on the site, an exchange can emerge between employment and training. Businesses can open up their industrial spaces to the students and offer internships. In this way they can make use of the local manpower and they can jointly answer for the training of the youths. They can, when their training is completed, flow through to the work market more easily.

**'Thanks to the ambition to maintain and reinforce industrial activity on the site, an exchange can emerge between employment and training.'**

Percentage of 0-17-year-olds in the neighbourhoods







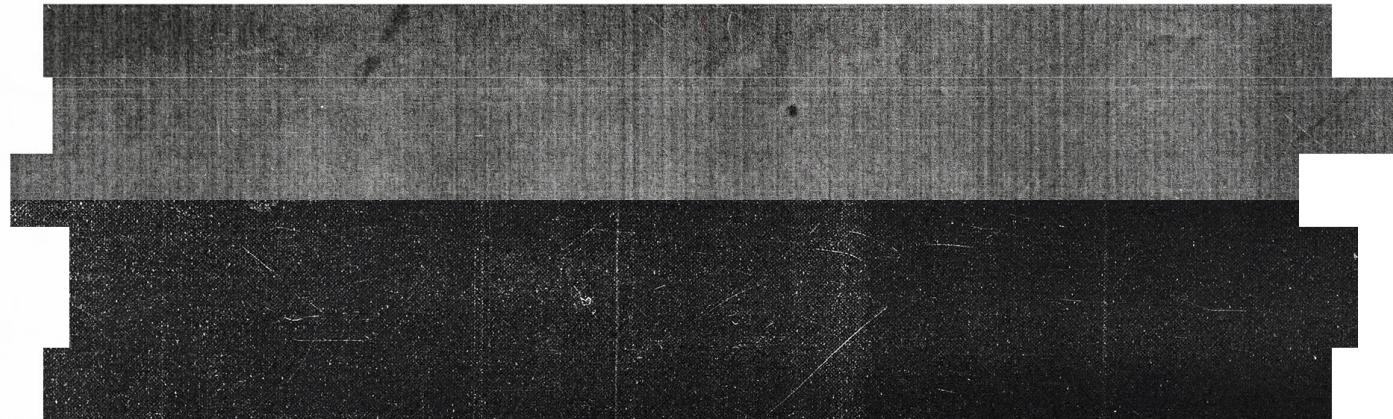
**Bozar**

AgendaBlogPréparez votre visiteSoutenez-nous

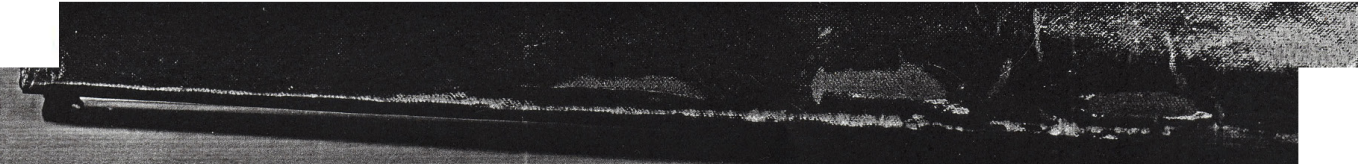
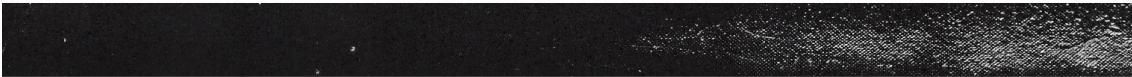


**‘Spatial Disobedienc  
e. Children  
in Space’**  
**8 Déc.’24  
– 14:00**  

✓ Films  
✓ Kids’ Palace  
✓ Close-up  
✓ Family Film Club

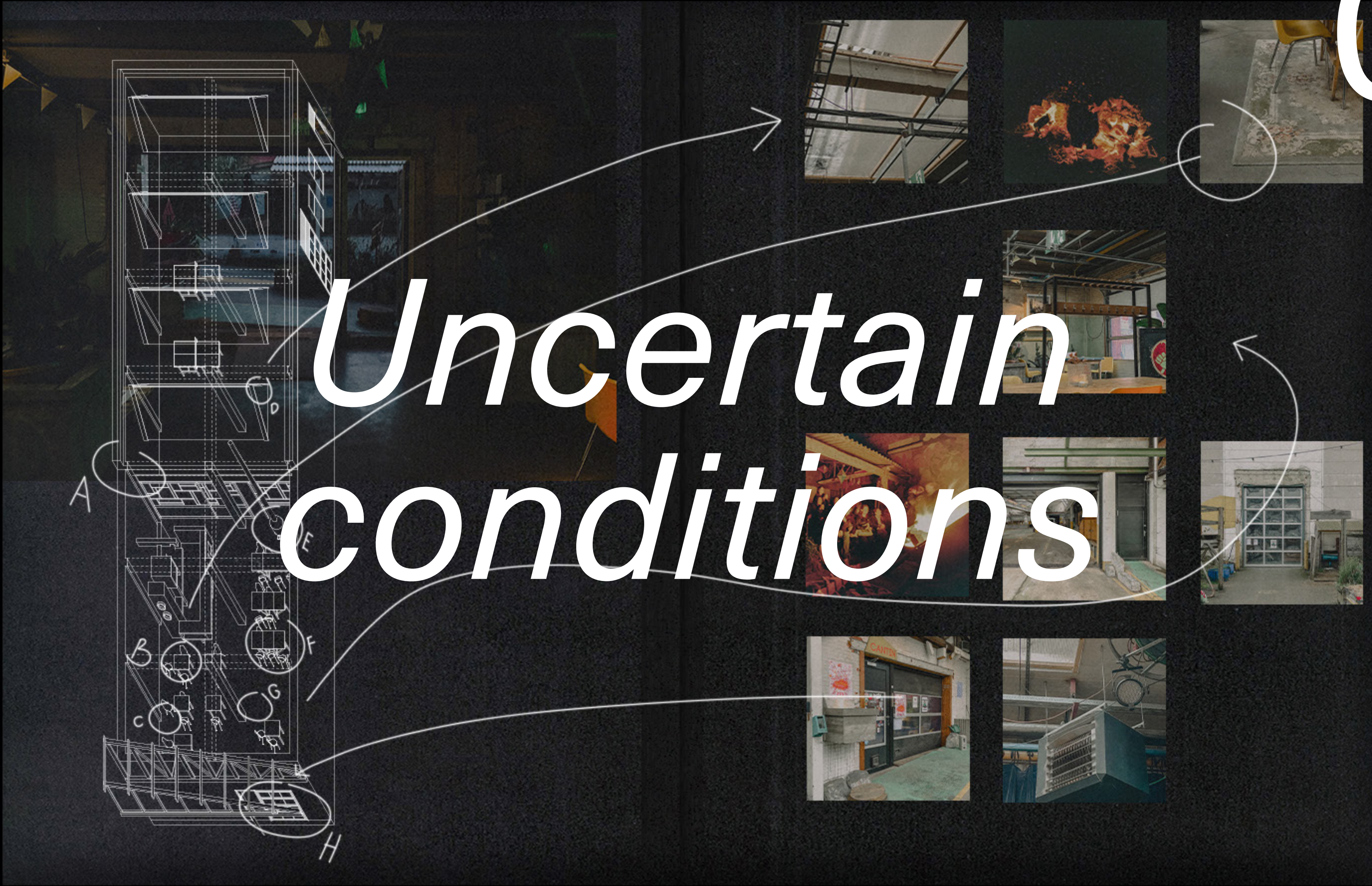


A young man will never say in  
Autumn, to quote the poet, that Summer was  
the only season. A young man never gets old.





*Uncertain  
conditions*















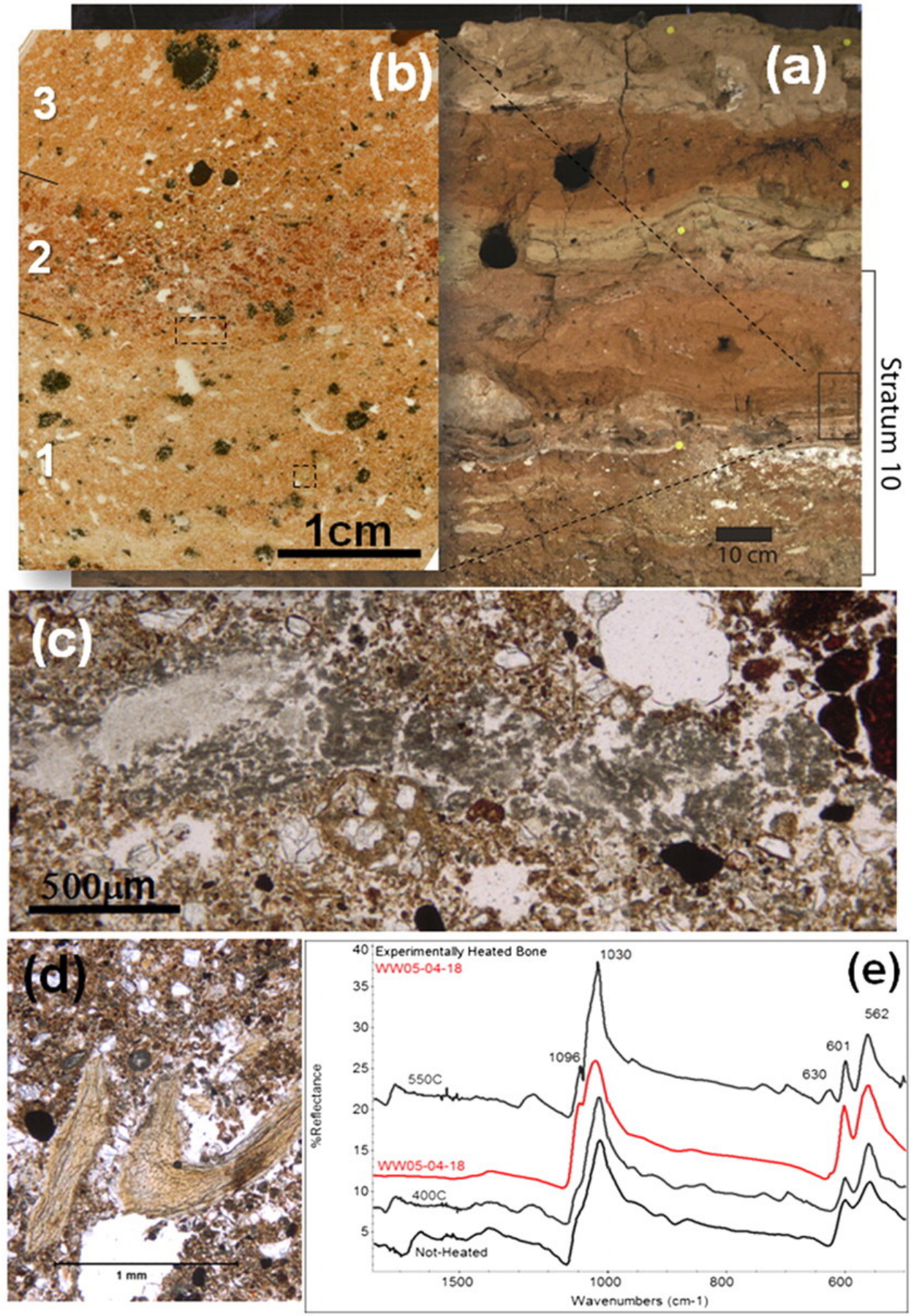








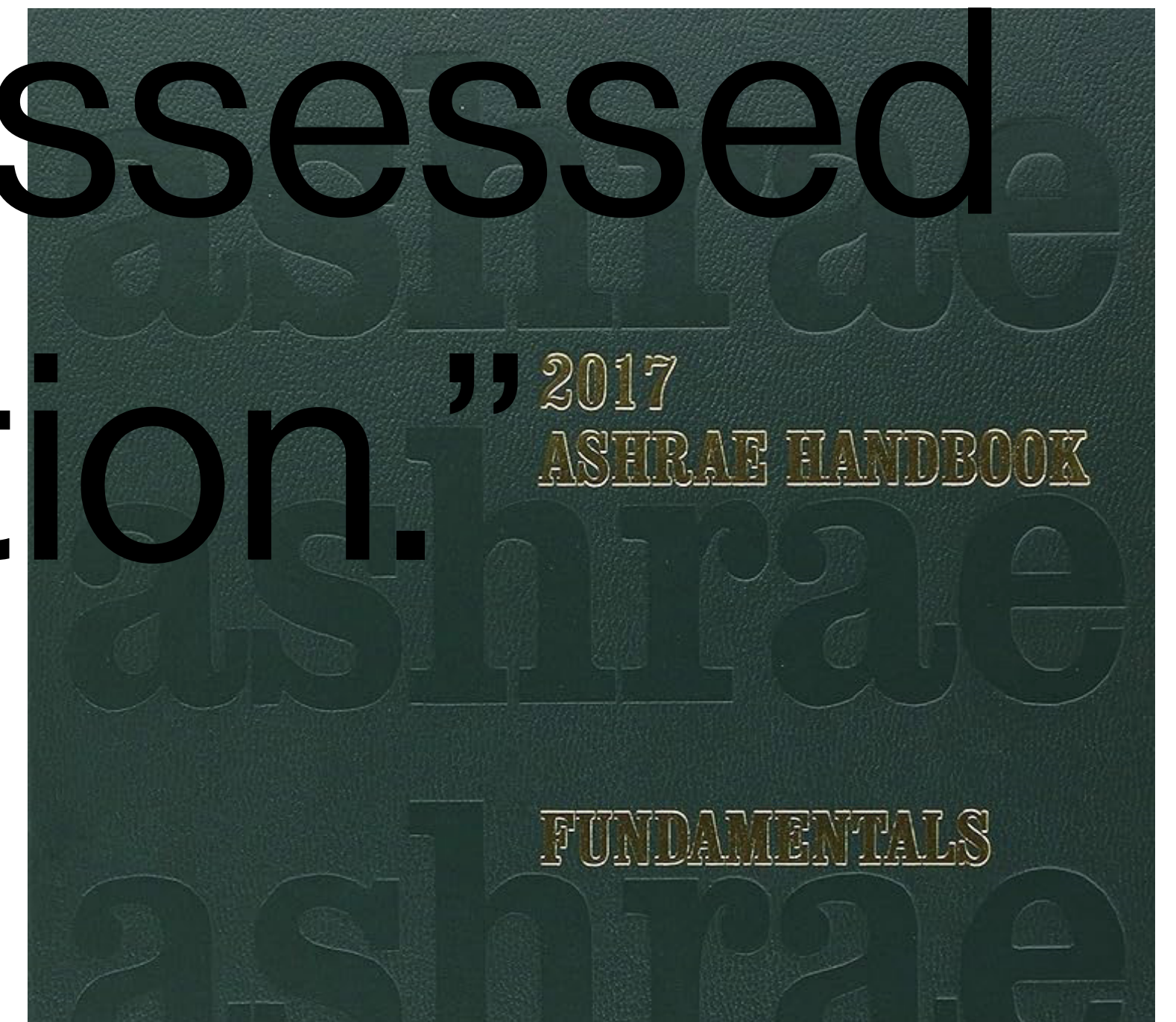




(A) Photograph of profile in square Q28. Box indicates approximate location of thin section shown in B, exhibiting three microfacies: 1, bottom sand silt and clay mixed with ashed plant material, dispersed wood ash, and bone fragments; 2, clay aggregates and fragments; and 3, rounded aggregates of sandy silt. Boxes mark the location of the microphotographs shown in C and D. (C) Clump of calcitic wood ash with typical ash rhombs and prisms at the contact between microfacies 1 and 2. (D) Bone fragment from microfacies 1 in B. (E) Fourier transform IR reflectance spectra of bone fragment shown in micrograph (D, red line) and of unheated and experimentally heated bone processed in thin section (black lines). Appearance of infrared bands at 1,096 cm<sup>-1</sup> and 630 cm<sup>-1</sup> are used as heating temperature indicators, showing that the fragment was most probably heated to more than 400 °C.



Thermal comfort is “the condition of mind that expresses satisfaction with the thermal environment and is assessed by subjective evaluation.” (ASHRAE, 2017).





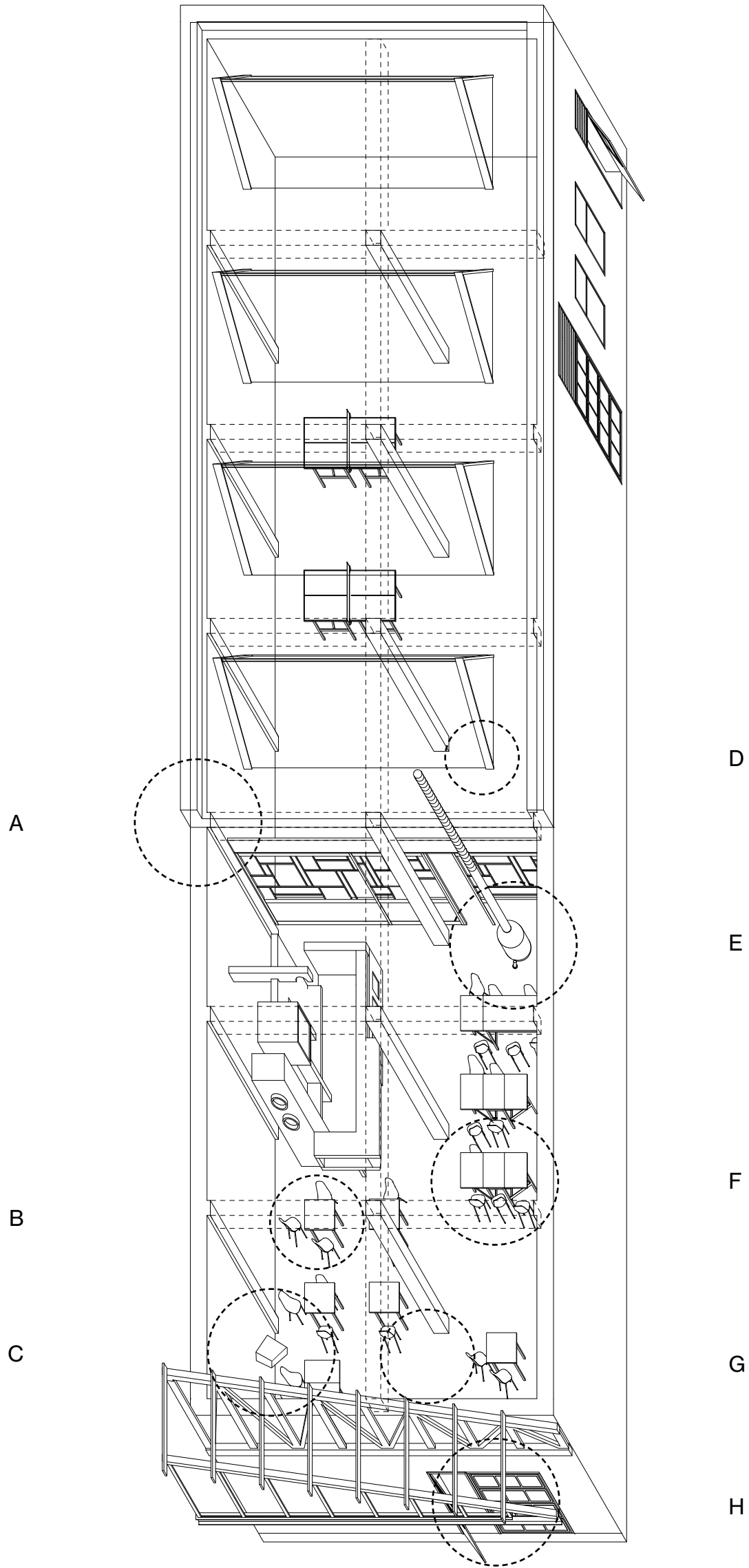




Observing ‘Cantin’  
Winter / 15.12.2024 / 12<sup>49</sup>  
Sunrise 8<sup>39</sup> / Sunset 16<sup>37</sup>  
Cloudy & Dry  
Exterior air temperature 8°C  
Interior air temperature 17.6°C



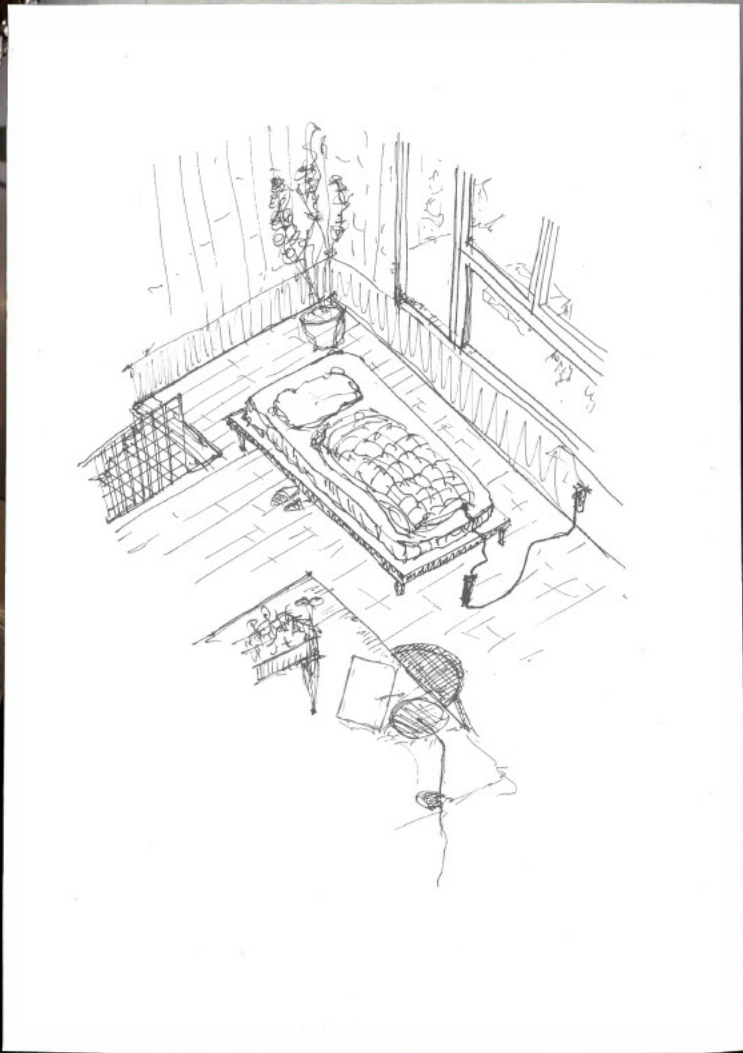
This afternoon it is heavily cloudy with some local light rain. The low clouds can reduce visibility. The forecasted temperature for the day is between 3 and 11°C





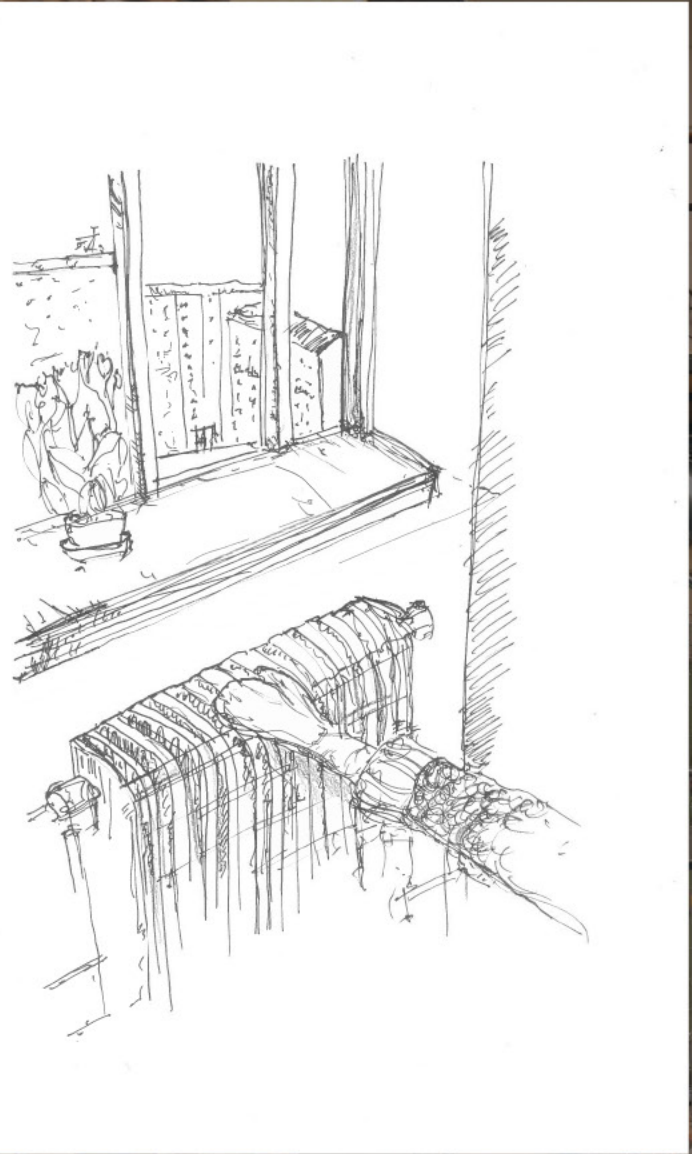
"I think we've forgotten with central heating systems that there are many ways to keep warm or make yourself comfortable. You don't always have to heat the entire space. Sometimes, I sleep in my atelier, especially when I have night shifts or projects. In winter, I use an electric blanket. I just turn it on until my bed warms up, then I turn it off before getting in. That way, I stay warm, and because I never uncover, the warmth stays in. It's so simple, and even though everything around me is freezing, I stay warm."

Elke Lemmens



There is a difference: In Maakfabriek, people move around a lot because their work is quite physical. They're really making stuff out of heavy wood and heavy iron. So there aren't many people who heat their studios. But in De Stelling, it's different. We installed air conditioning units in the ateliers, which helps a bit. However, that is sometimes not enough for people sitting behind their laptops every day from morning till evening. It's just not. The people who don't like it simply leave. They don't stay. But there are also people who don't mind and just buy warm clothes and walk around when they're cold. So how people react is very individual.

Elke Lemmens



"Most of the time when I tell people we don't put it higher than 19 degrees at our house, they're like - 'Whaaat?', I always put 20, 21." But I just take another sweater, you know? In my atelier, it's much colder now, and while I'm used to it, some visitors, like those trying on clothes, find it uncomfortable because they're not used to the cold. On the other hand, in the summer, it gets very warm - once reaching 38 degrees - and I had to leave the city because it was unbearable."

Hanne Nieberding

"Blikfabriek is an old industrial building with no heating, so it's often cold. You've got the feeling that the temperature is always different from what you're used to in buildings. Spending time there, I got used to the cold - I adapted my clothing and lifestyle. Both your body and your mind adapts very quickly to a situation like that. Now, even at home, I can easily lower the temperature because I'm used to it."

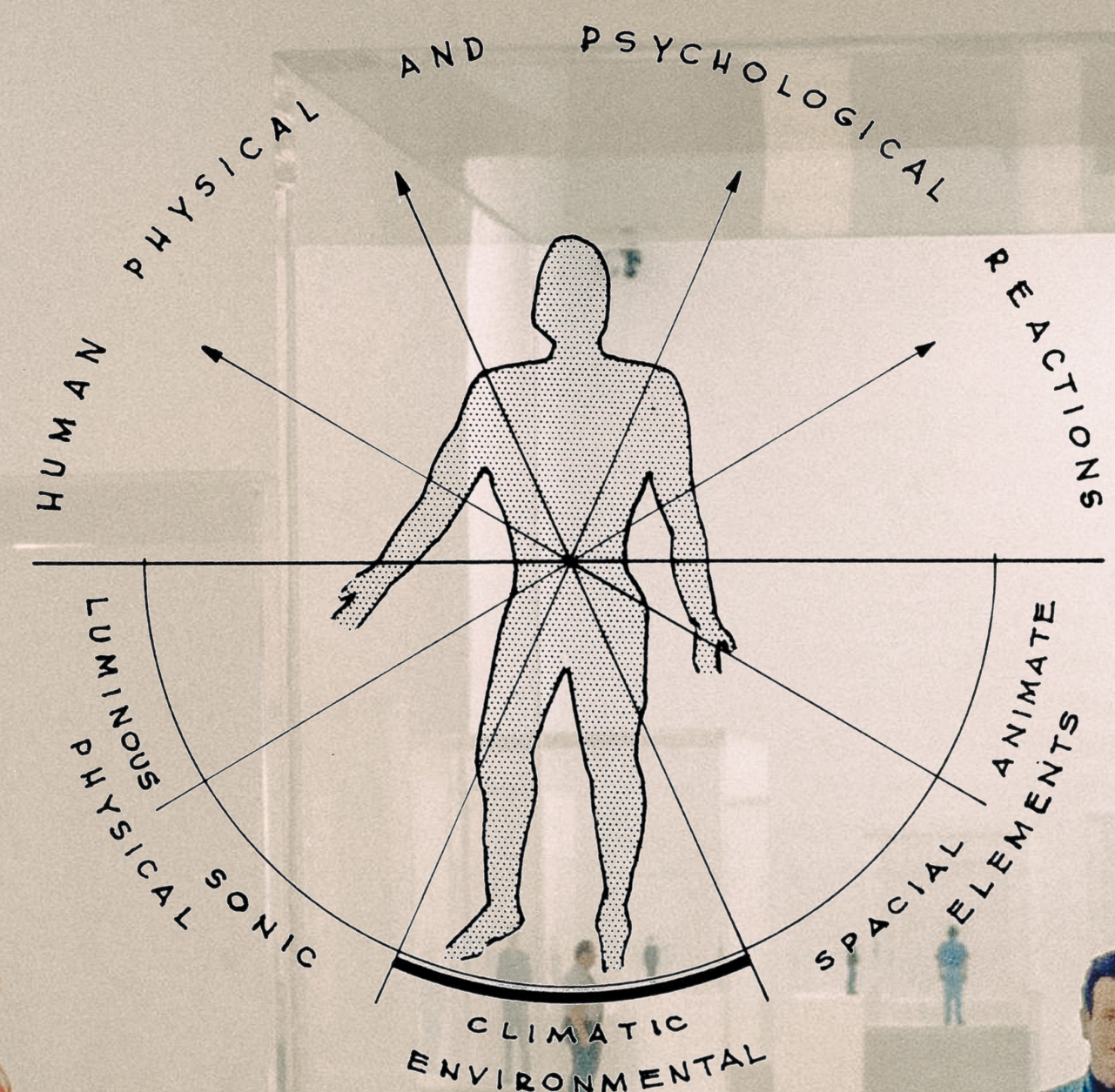
Elke Lemmens



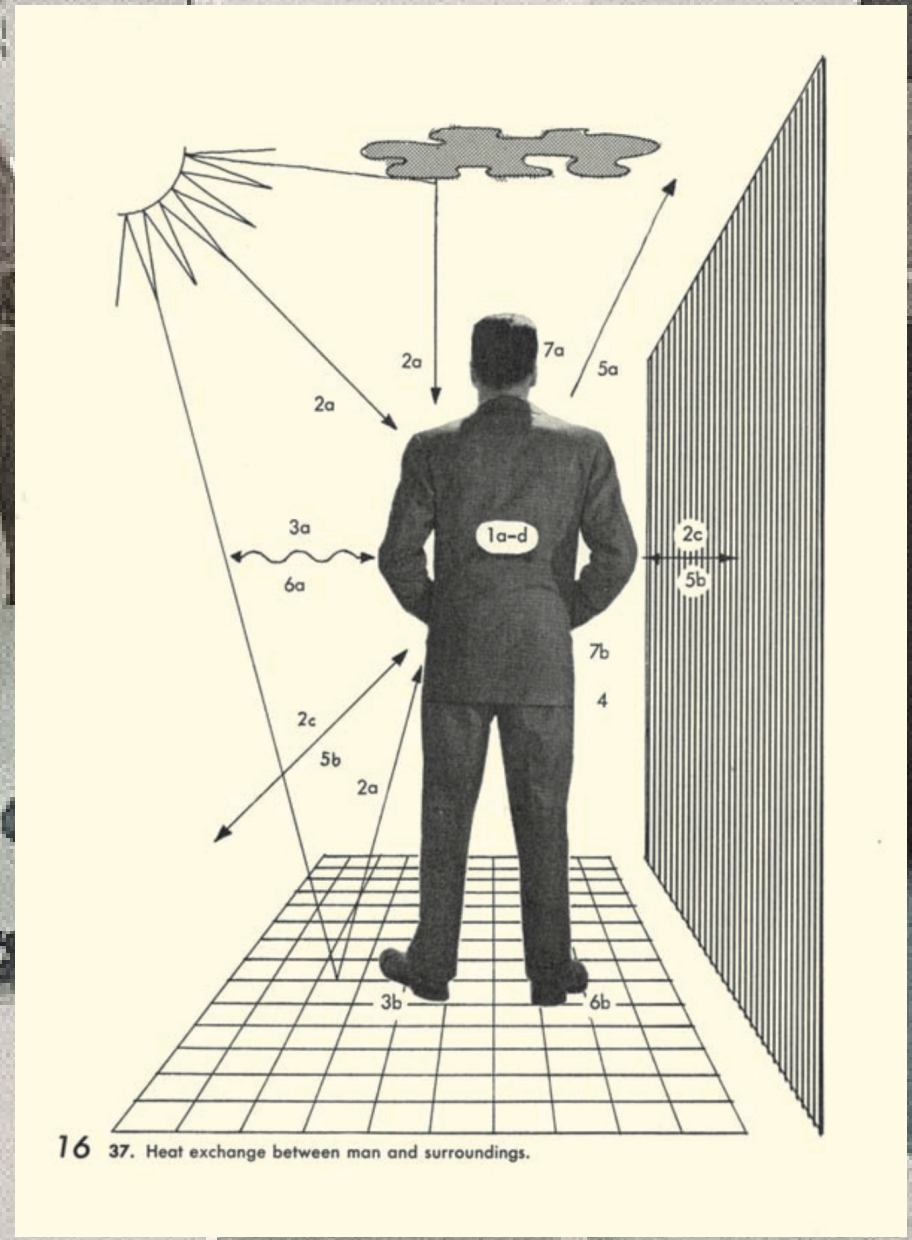
"My mom was an art collector, so I was raised in an environment surrounded by bohemian life. When I first encountered a similar situation, my initial thought was: 'Oh no, not again.' Sometimes you just want something normal, like a typical home. At first, I didn't think I could handle it because of the war I was fleeing and my recent divorce. But surprisingly, it was cool. The chaos kept me distracted and might have helped me cope with everything happening in my life. You know, like when kids get hurt and parents try to divert their attention to something else."

Alexey Soldatov





34. Man as the central measure in architecture.



16 37. Heat exchange between man and surroundings.

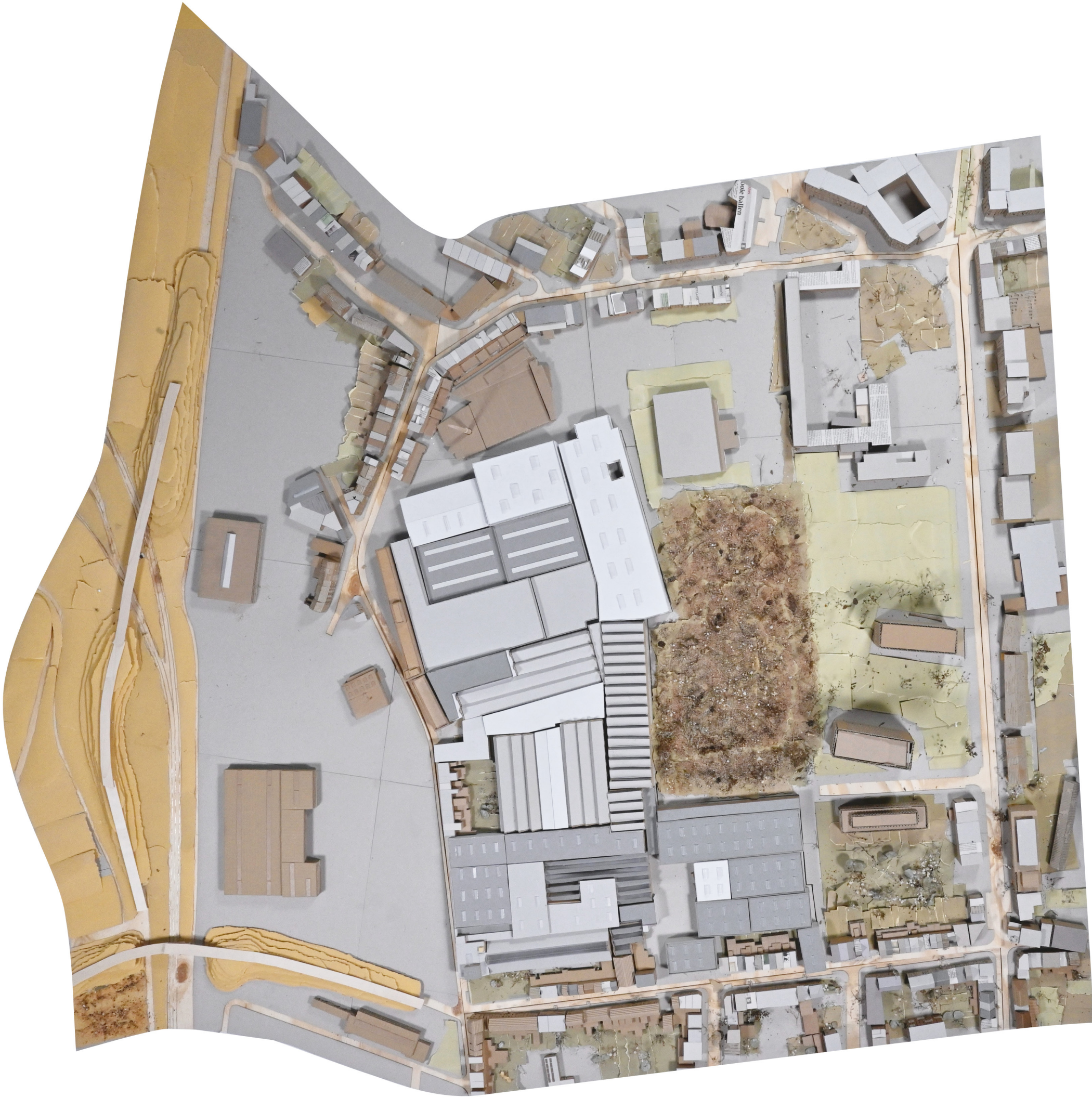




*From the  
Street to  
the City*







1:333 Collective Site Model - Current Situation

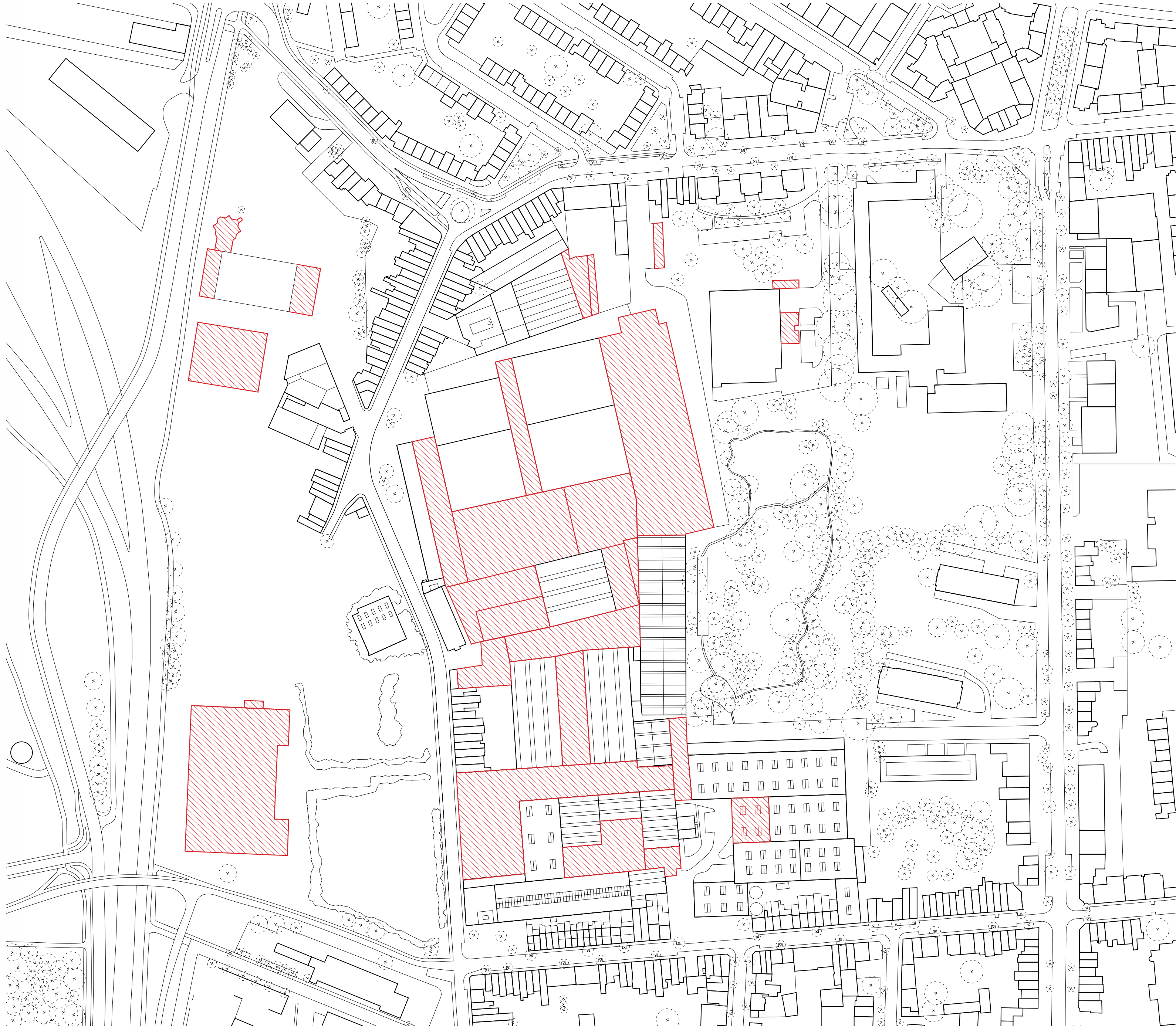








Green - Greenery    Red - Paved Public Space  
Brown - Unsealed Public Space    Dotted line - Car Traffic







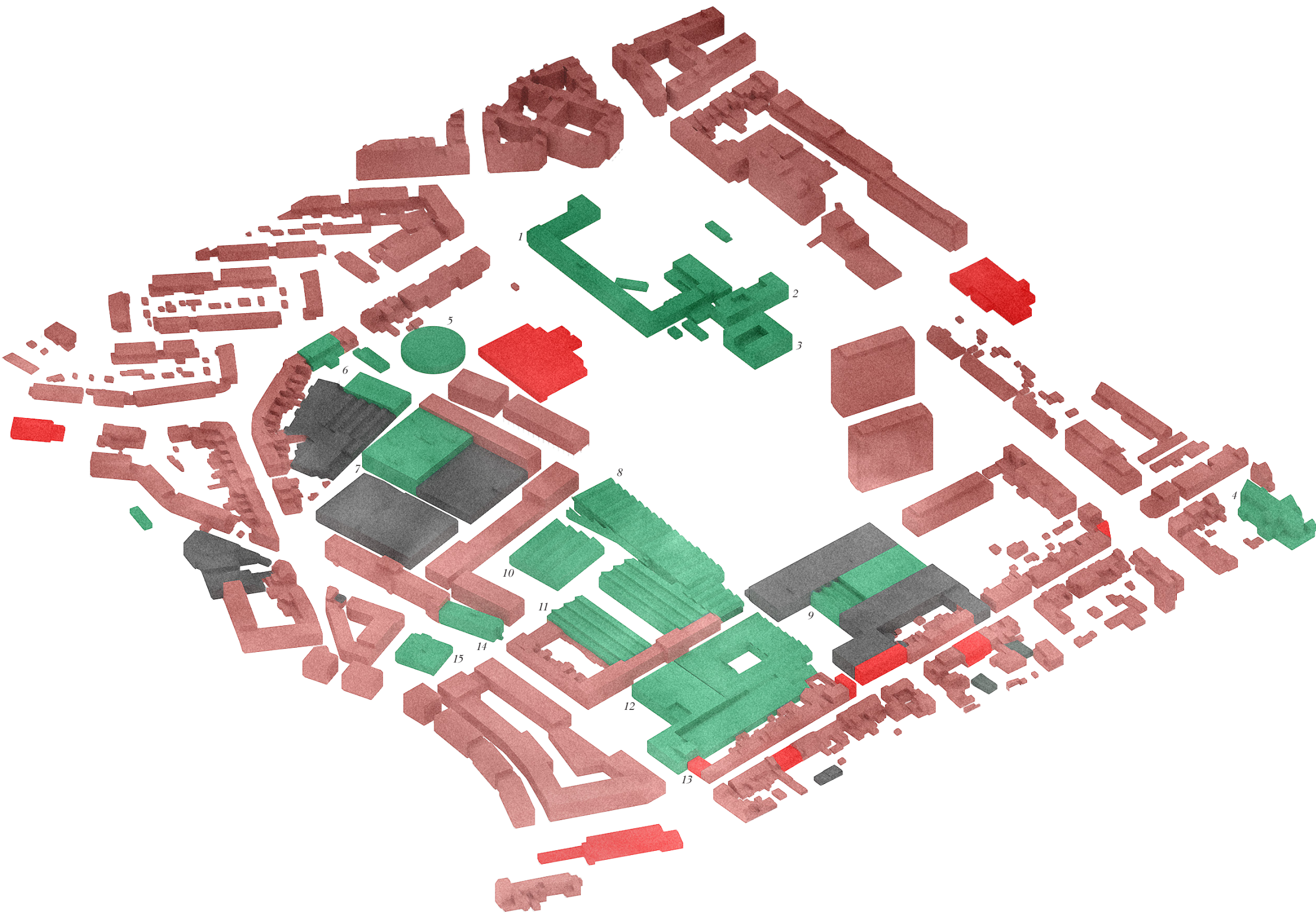
Green - Greenery    Red - Paved Public Space  
Brown - Unsealed Public Space    Dotted line - Car Traffic



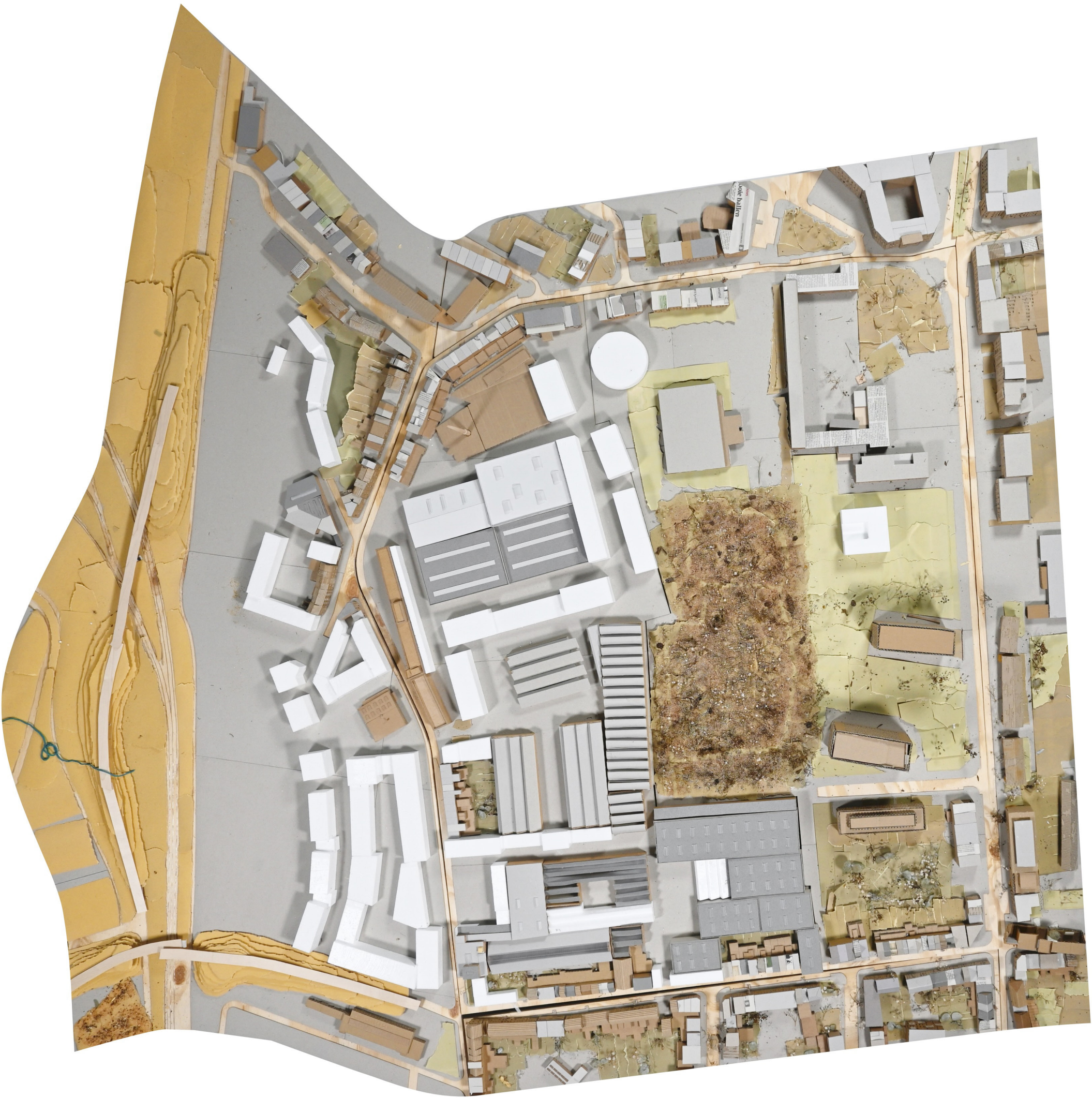








Brown - Housing    Red - Local Economic Activities  
Green - Urban Facilities    Grey - Industry & Businesses



1:333 Collective Site Model - Proposed Master Plan













The place that doesn't end



















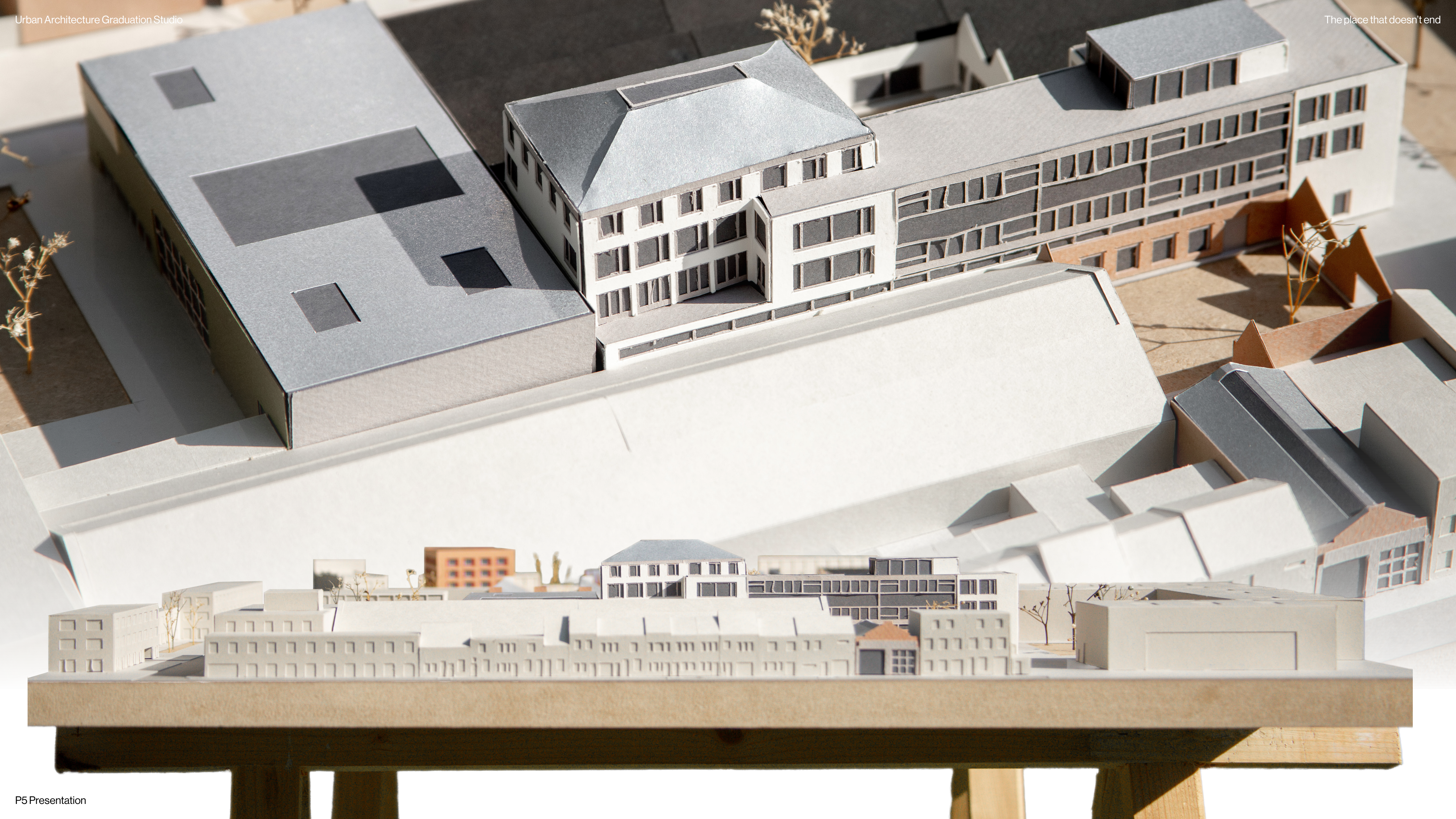












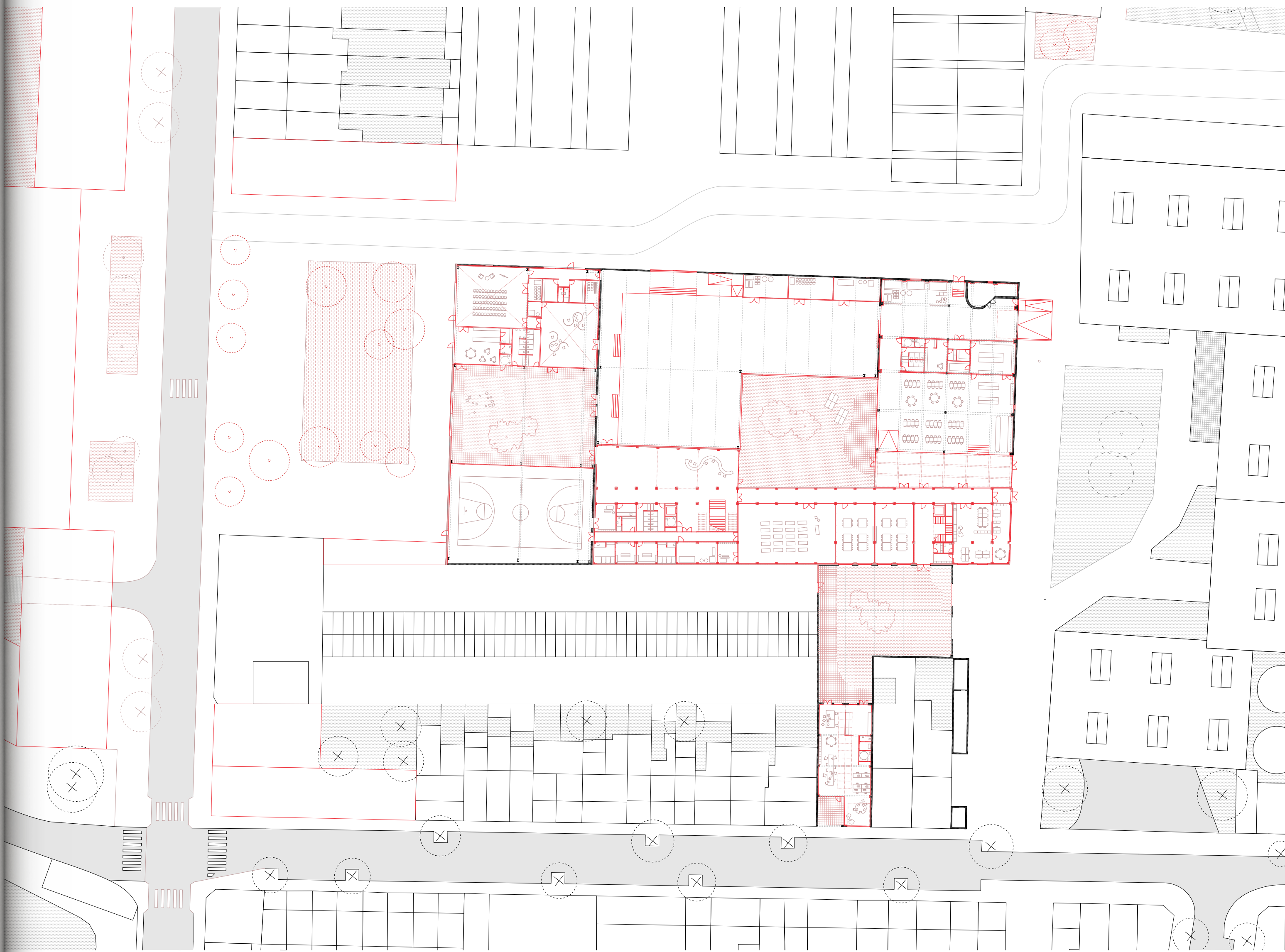
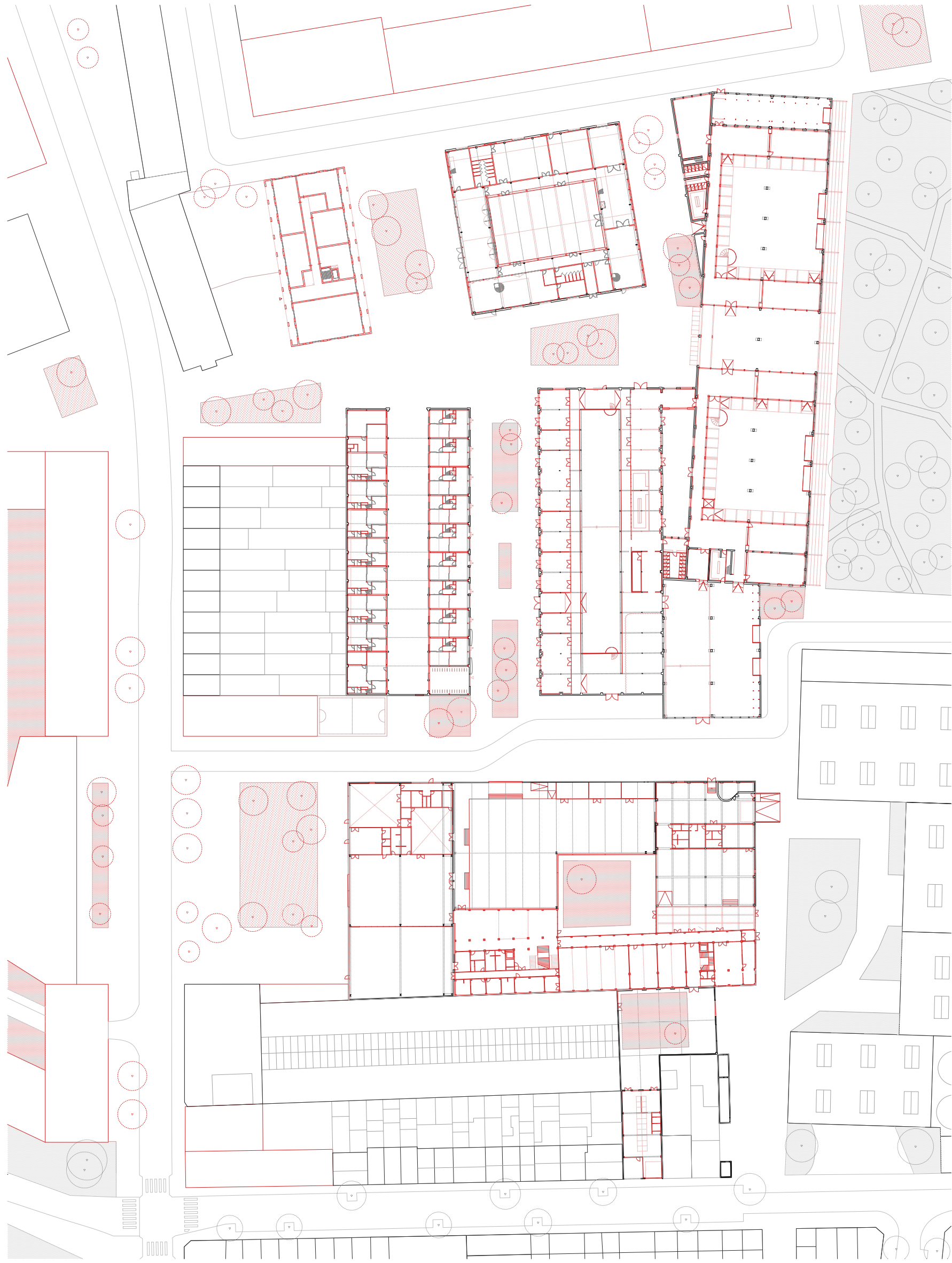
















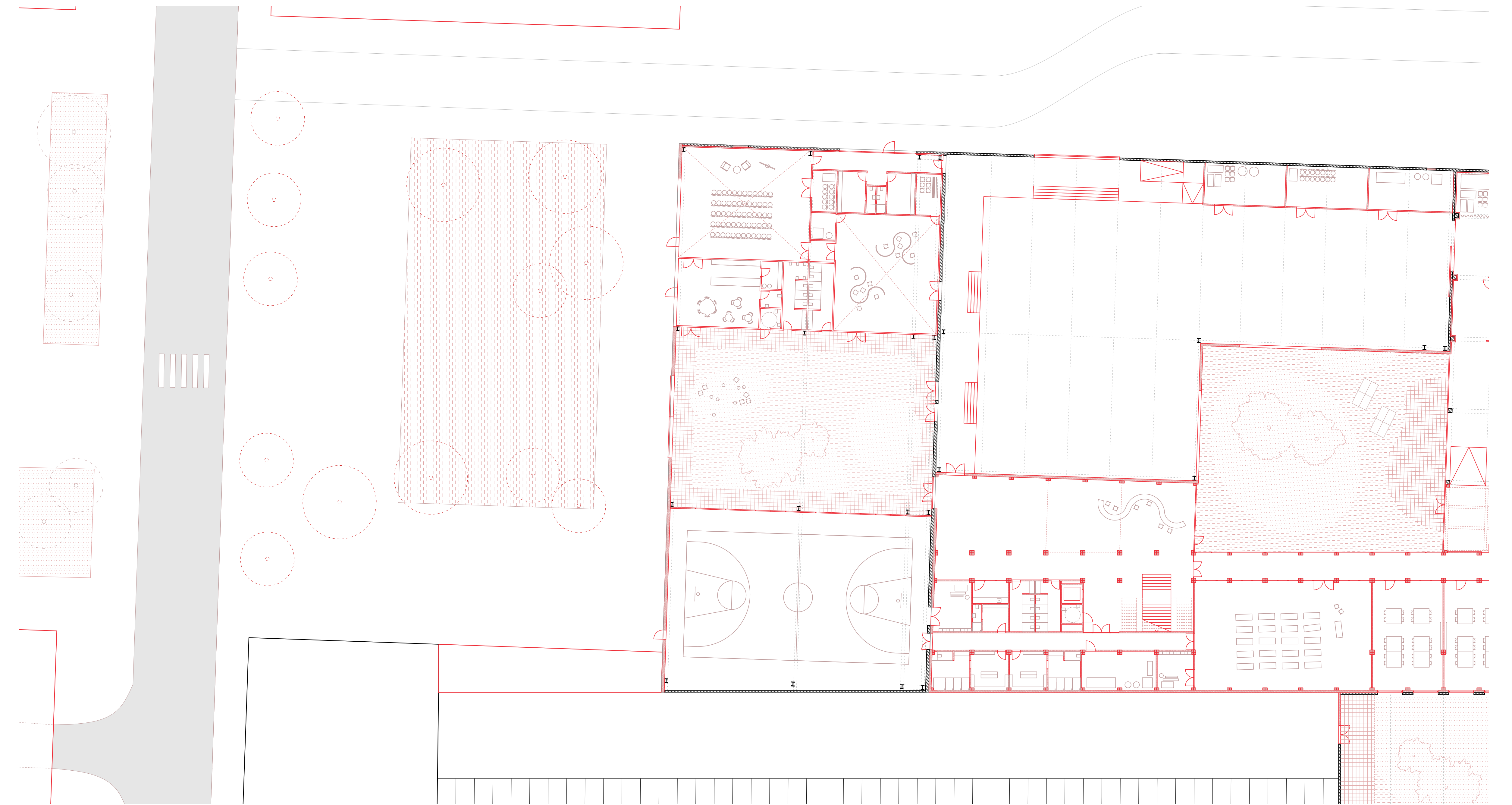




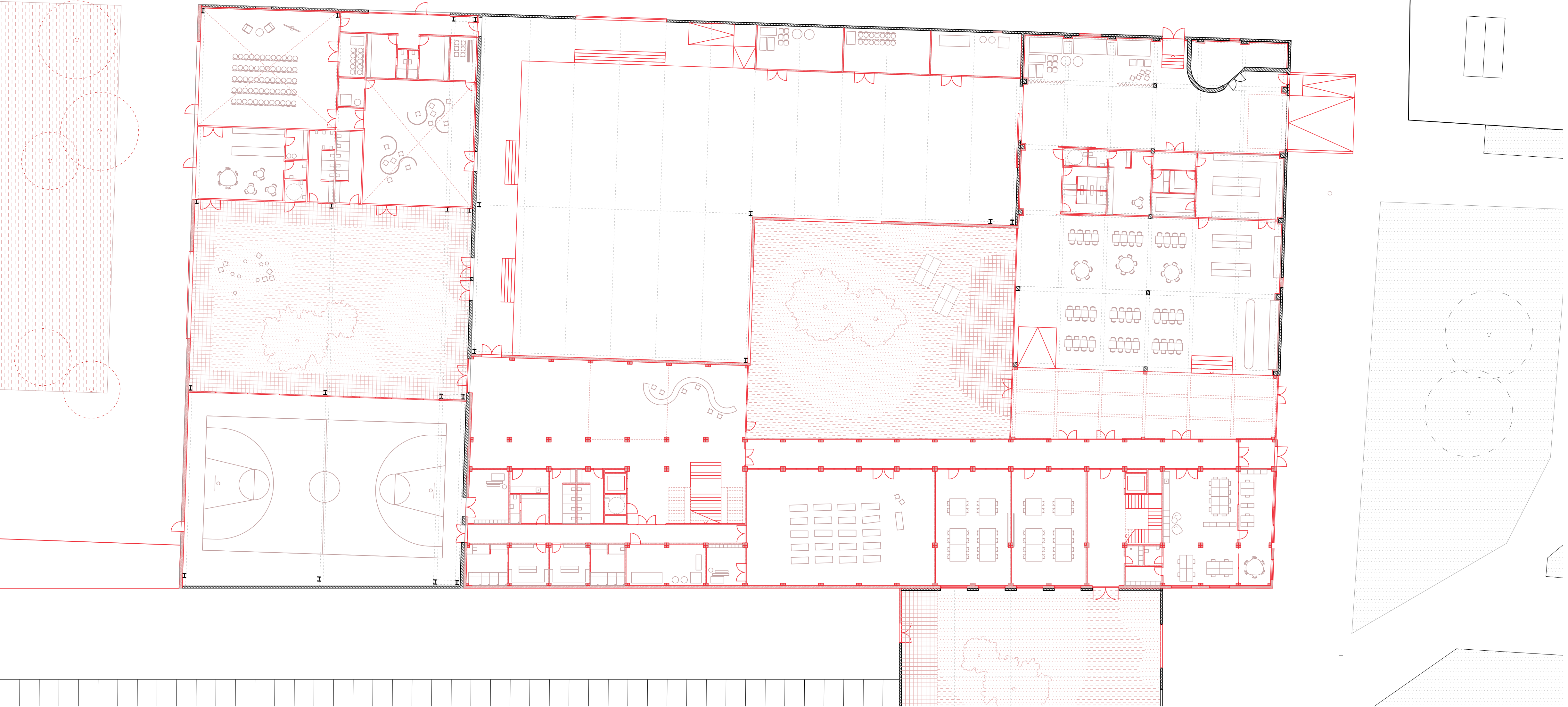




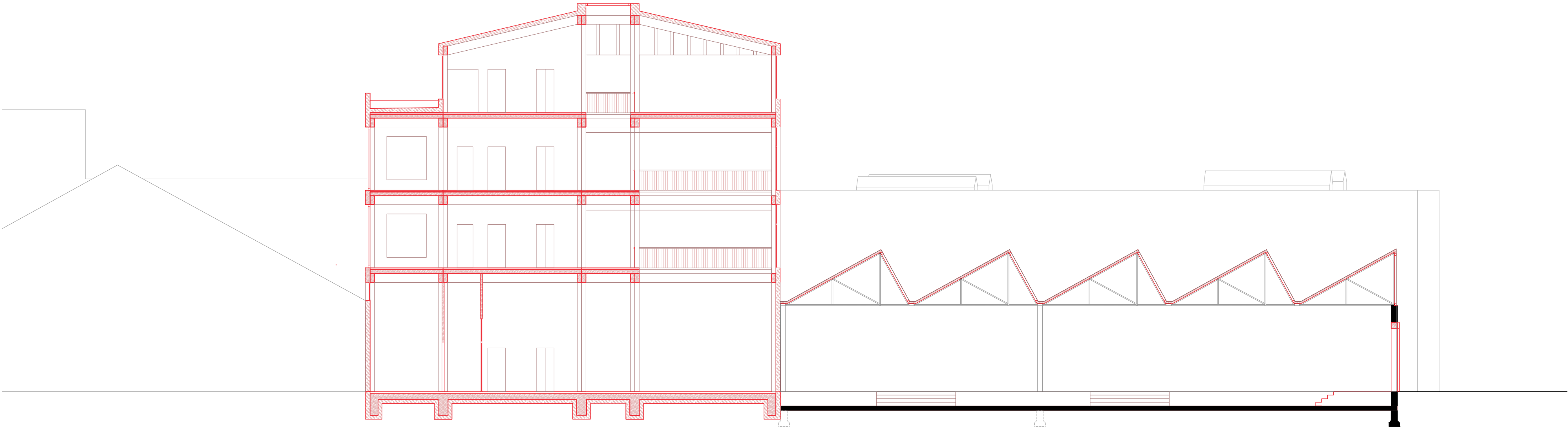
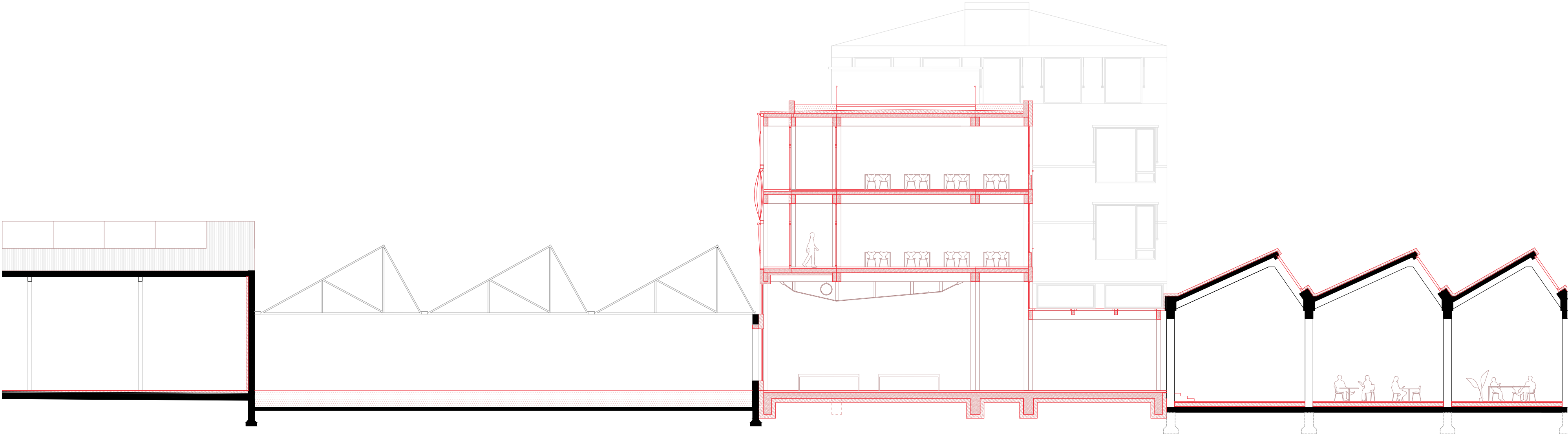


















Lecture: Thomas Auer



Article

The Right Amount of Technology in School Buildings

Thomas Auer, Philipp Vohlidka \* and Christine Zettelmeier

Chair for Building Technology and Climate Responsive Design, Faculty of Architecture, Technische Universität München, 80333 Munich, Germany; thomas.auer@tum.de (T.A.); christine.zettelmeier@tum.de (C.Z.)  
\* Correspondence: philipp.vohlidka@tum.de; Tel.: +49-89-289-22585

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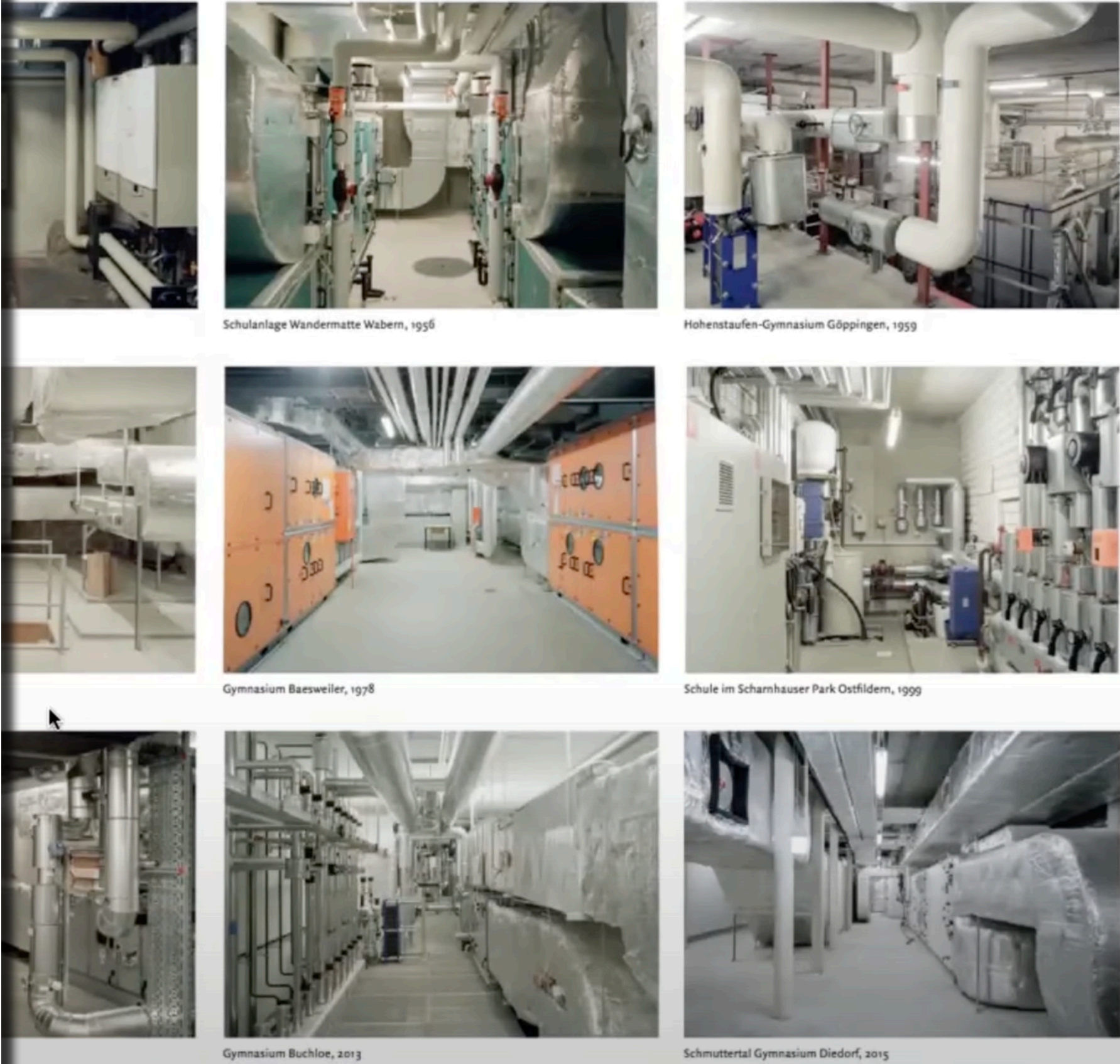


**Abstract:** What is an adequate school building nowadays and which amount of technology does it need? How high is the indoor comfort in terms of thermal, visual, hygienic, and acoustical comfort? Are there technical aspects that stand out to other solutions? How do users feel and act in the buildings? For this purpose, the Chair compared, in total, twelve selected modern, older, and renovated school buildings from different building age groups. For the comparison, it was essential to intensively analyze each of the twelve schools. This included visiting the schools, talking with the participating architects, specialist planners, builders, and school managers, procuring and analyzing planning documents and, where available, publications and reports, performing simulations and measurements in the classrooms, and surveying the buildings' users. The predominant energy demand in schools is the energy expenditure for heating and cooling the air, especially for heating the air in the winter. Nevertheless, it turns out that from a purely energy-focused perspective, mechanical ventilation cannot be justified. It is also evident that transmission heat losses play a negligible role in school construction, which is why the "passive house" as a goal for renovations must be called into question.

**Keywords:** schools; education; technology; comparison; comfort; indoor quality; evaluation; analysis

1. Introduction

The schoolhouse typology changed from a one-room country school to a vivid complex special structure [1] and is no longer defined as just a building where knowledge is conveyed. Rather, it is a place that invites learning, teaching, playing, communicating, and spending time, and that users associate with certain emotions and life stages. At the Technical University of Munich, the Chair of Building Technology and Climate Responsive Design, Prof. Thomas Auer, has been pursuing the question of what constitutes an adequate school building in terms of technology today. For this purpose, the Chair intensively compared twelve school buildings (Figure 1) in three different countries. They range from an elementary school on Haimhauserstraße in Munich that is over 100 years old, to a school from the 1970s that was renovated into a passive house, to the Schmuttertal-Gymnasium in Diedorf, which fulfills the "zero-energy building standard" and which has already received countless awards.

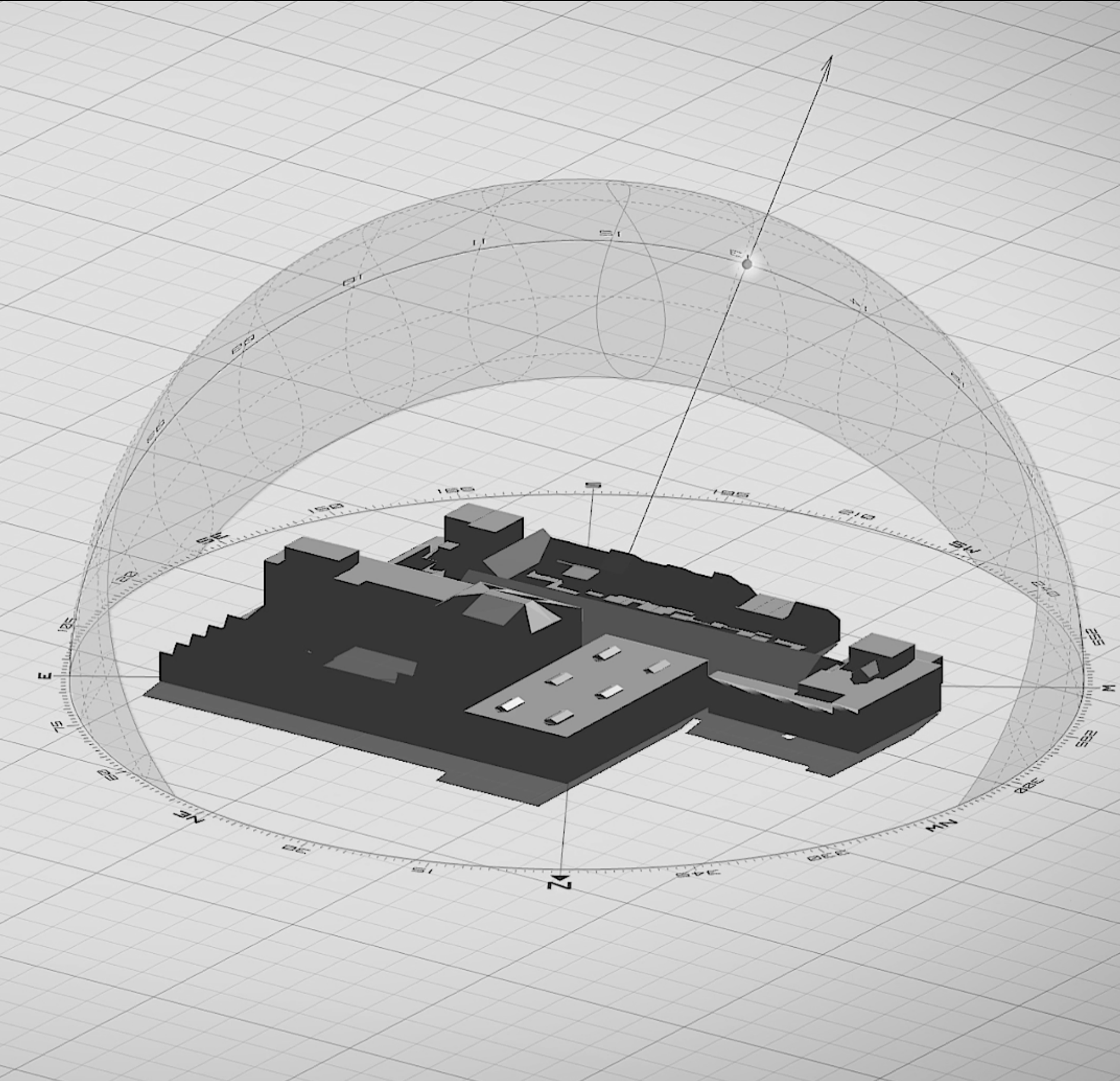
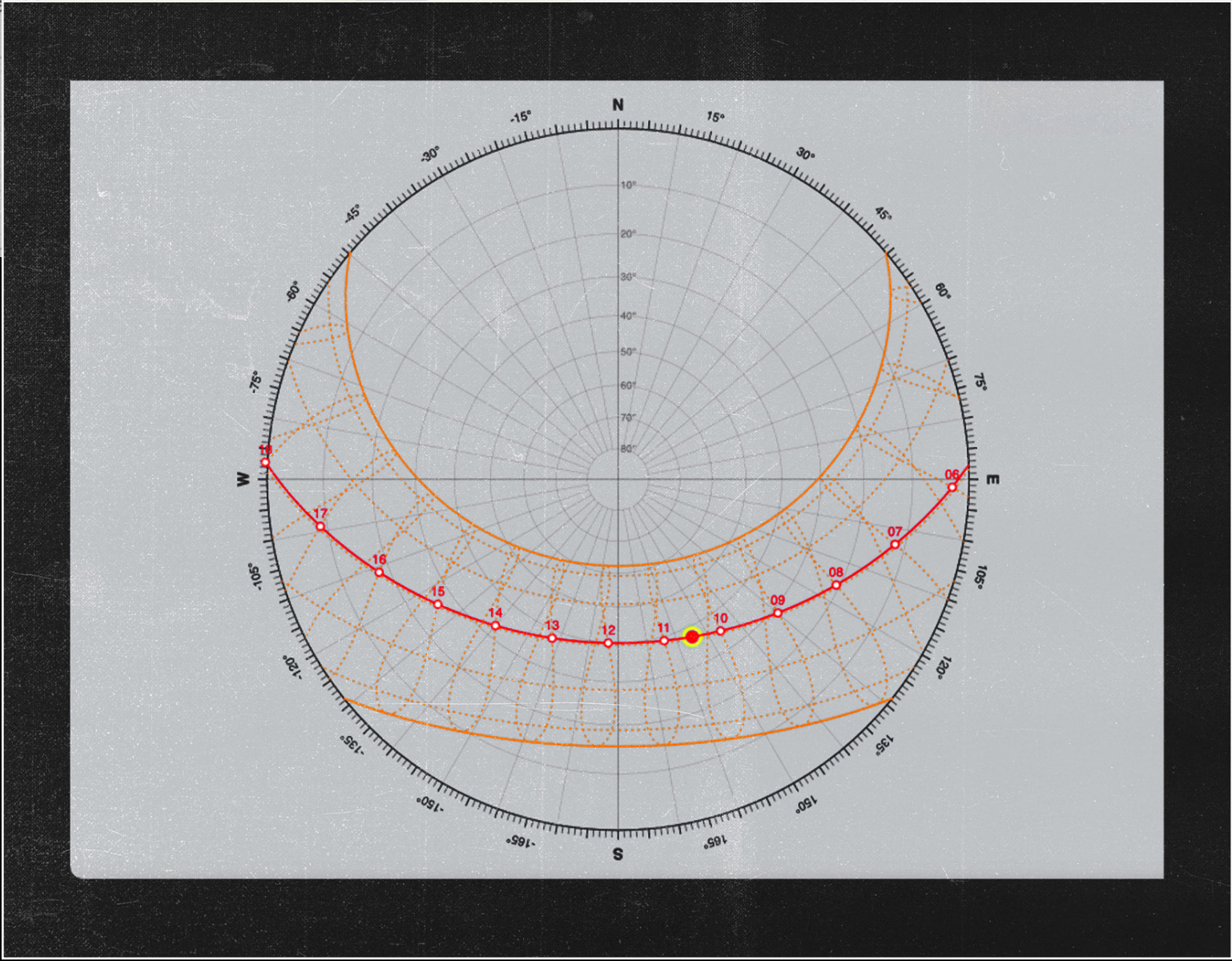
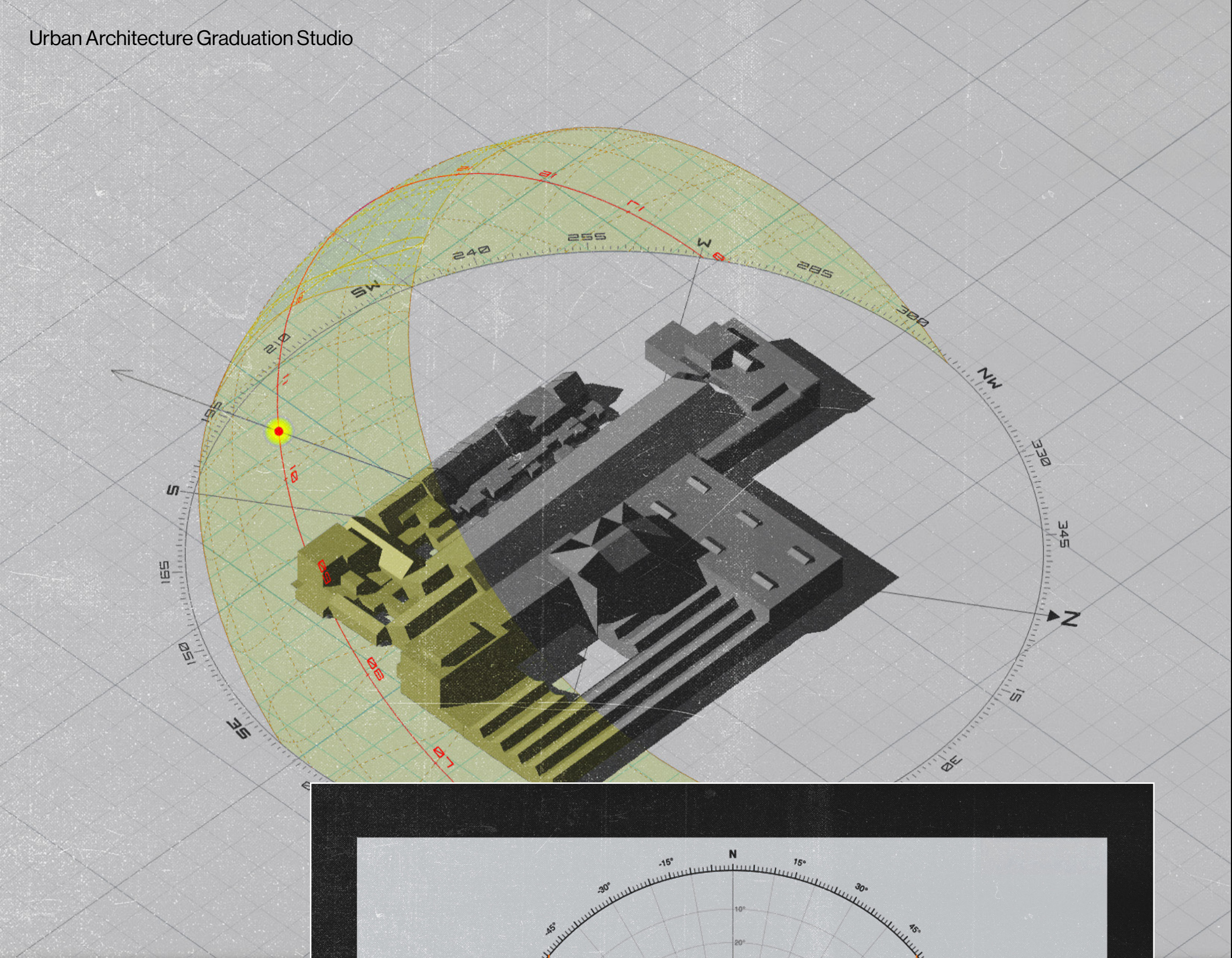


Thomas Auer

“The mechanical rooms at Theodor Fischer School include a boiler with an area of approximately 28 square meters. In contrast, at Diedorf School, there is essentially a room of a gym hall built beneath the building to house all the mechanical units. These systems are designed to ensure high efficiency, sustainability, and good air quality and so on. Additionally it took them three years to get the system operating properly.”

2021-02-17 18:36:00

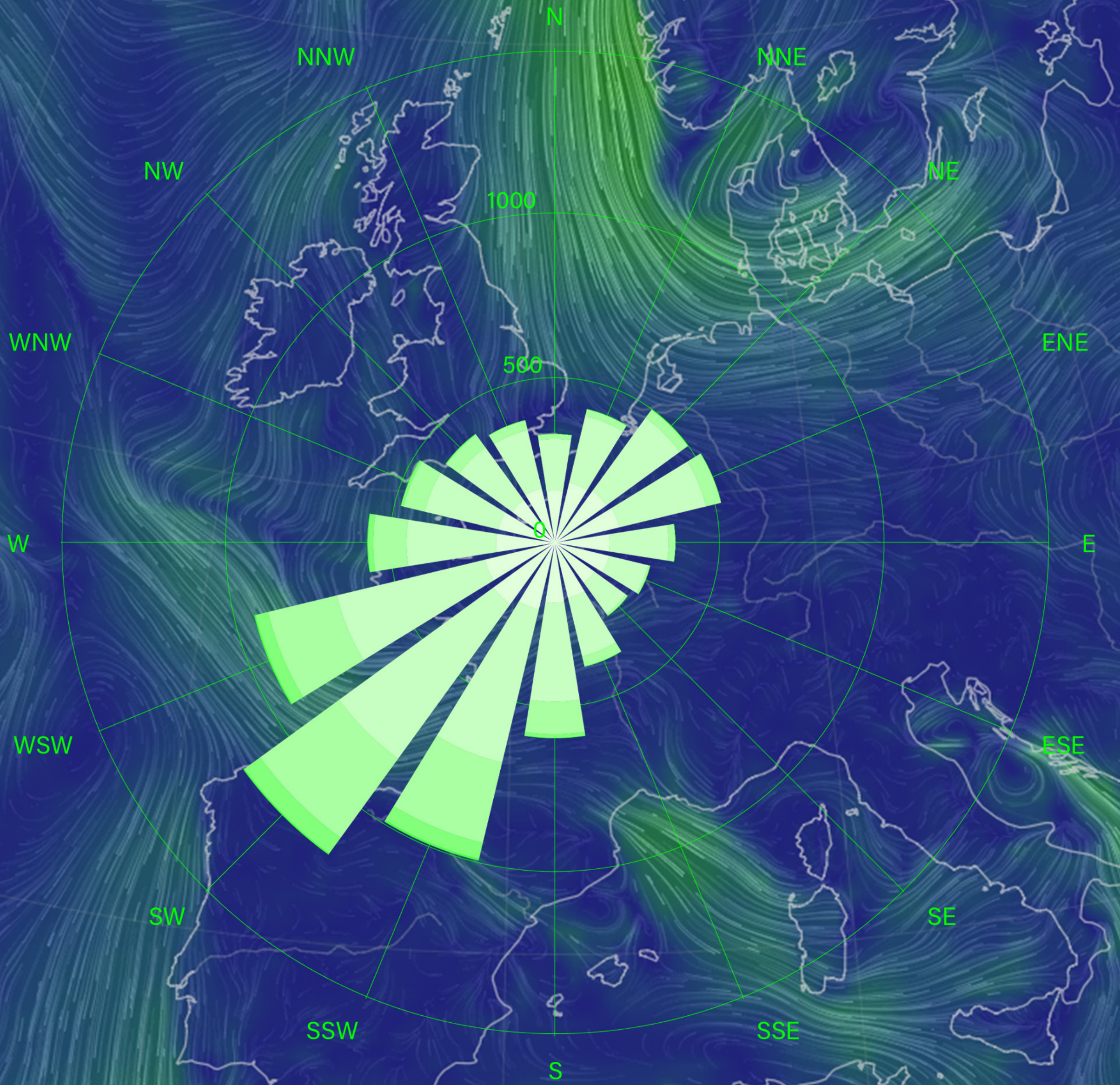




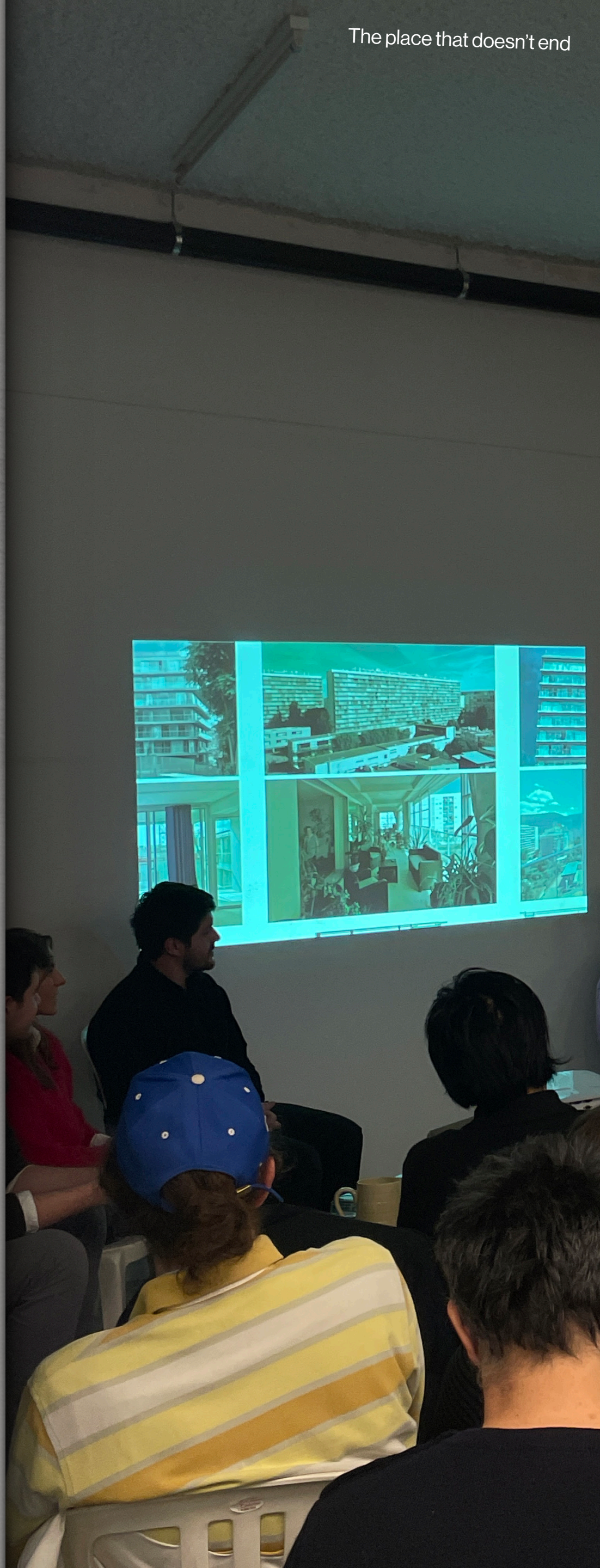
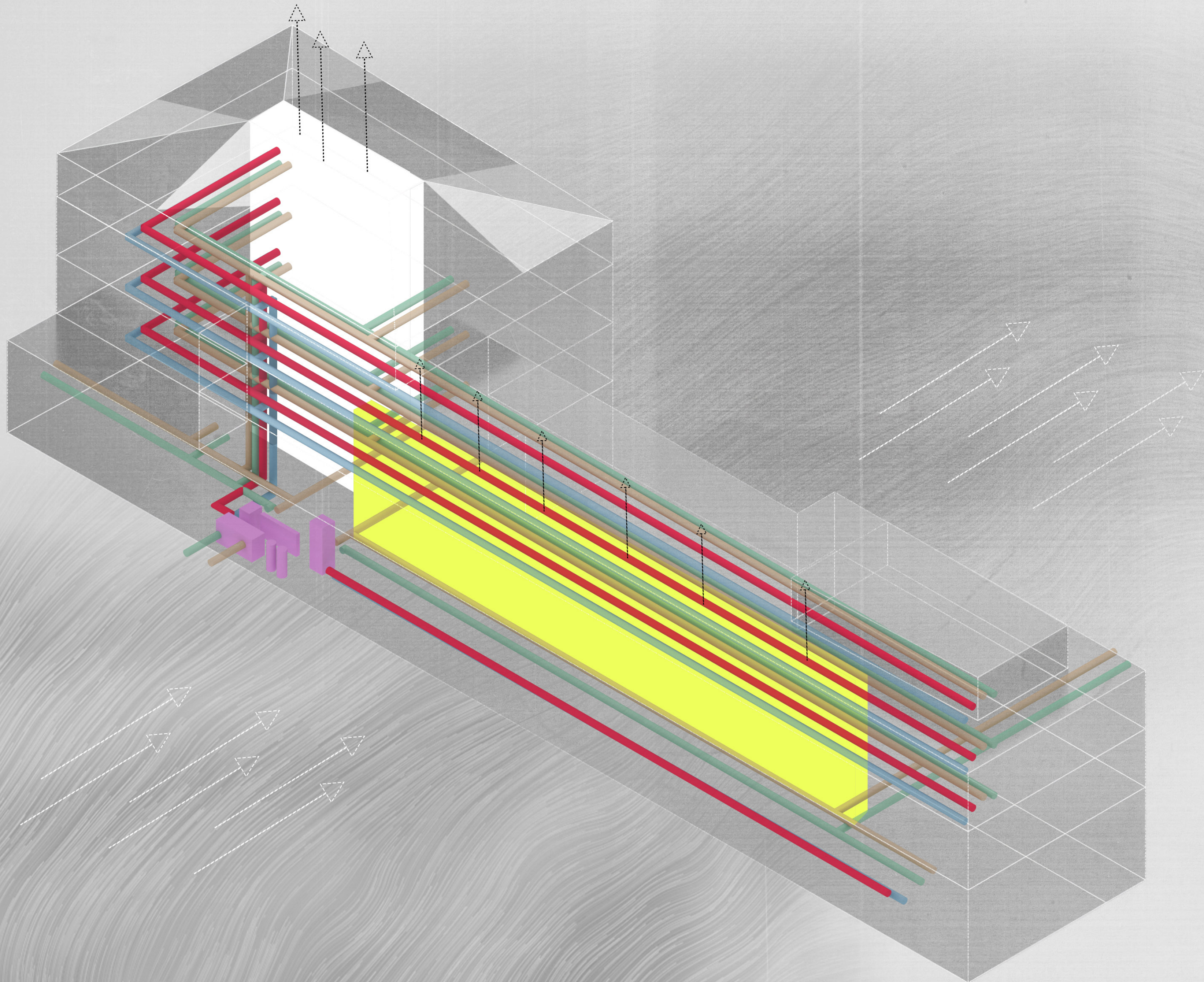


Antwerp

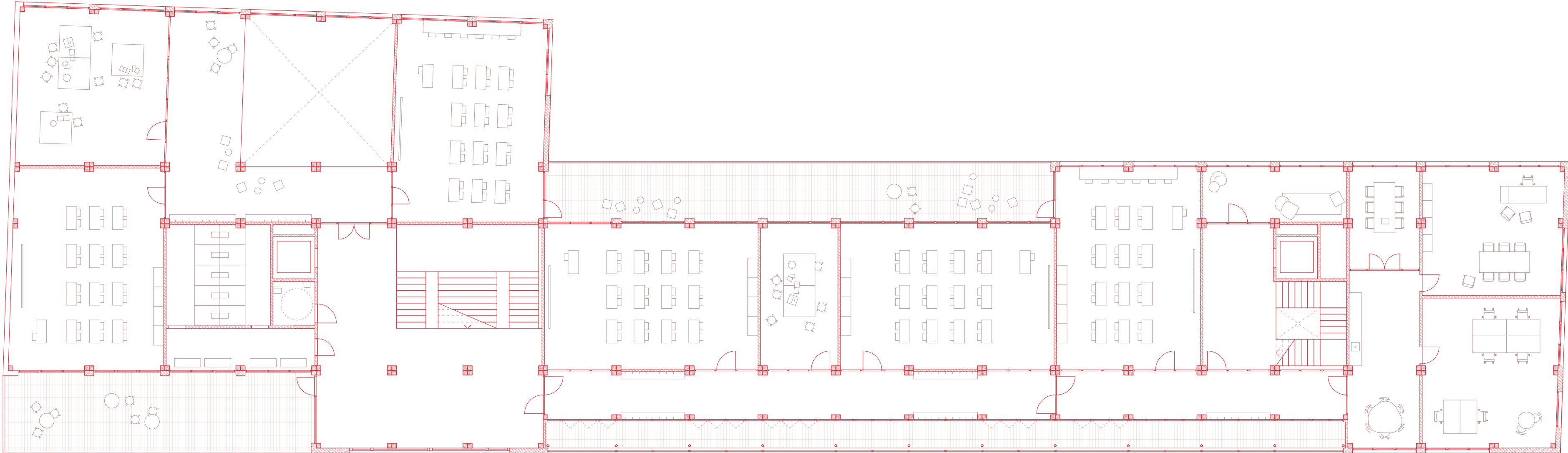
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Model: ERA5T.



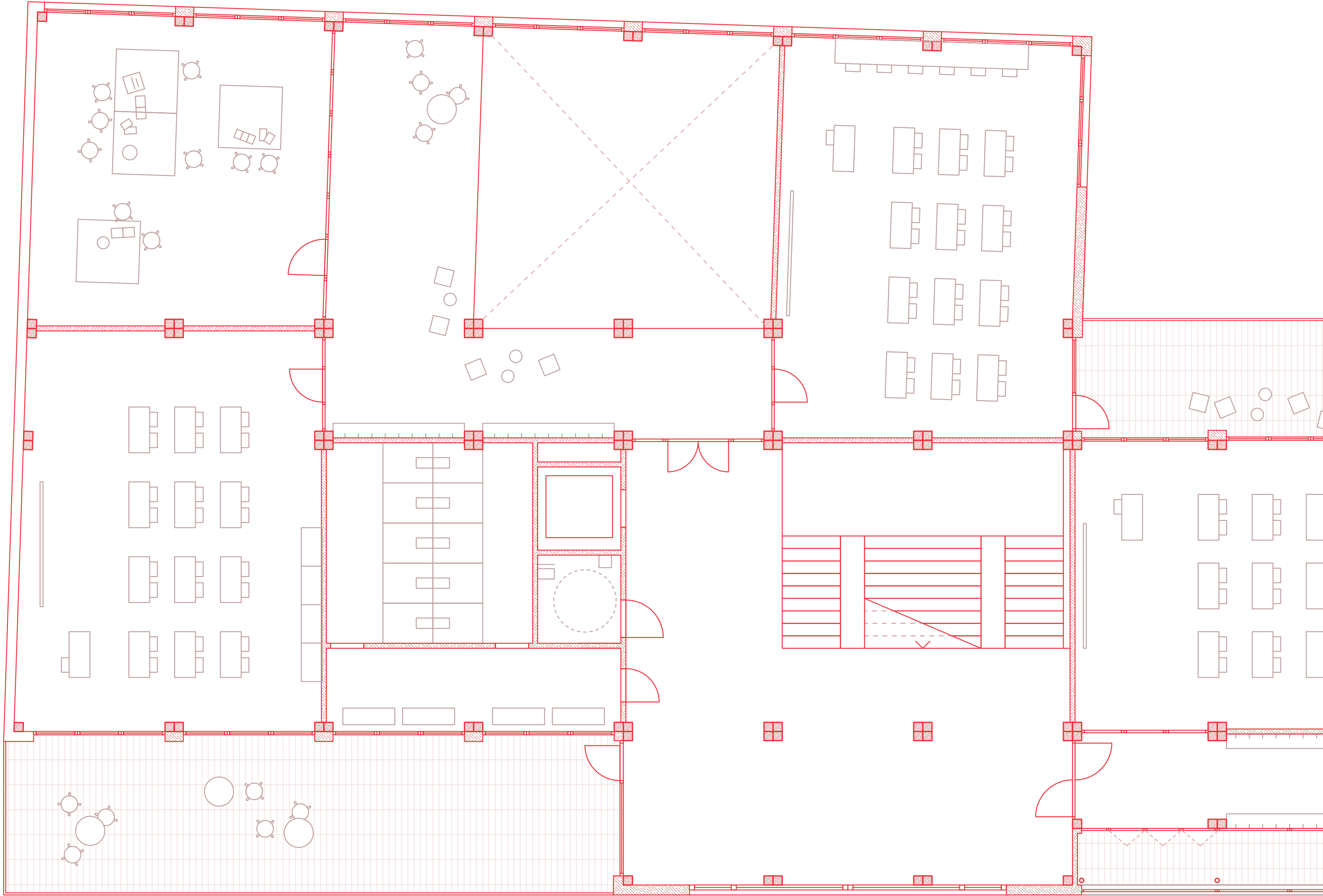




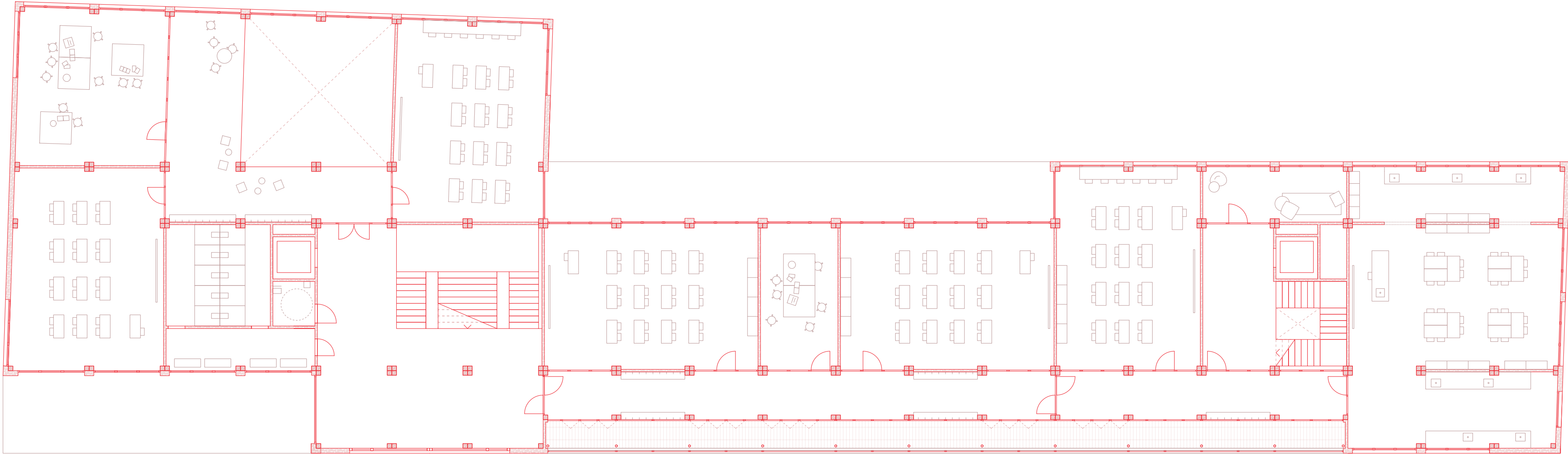




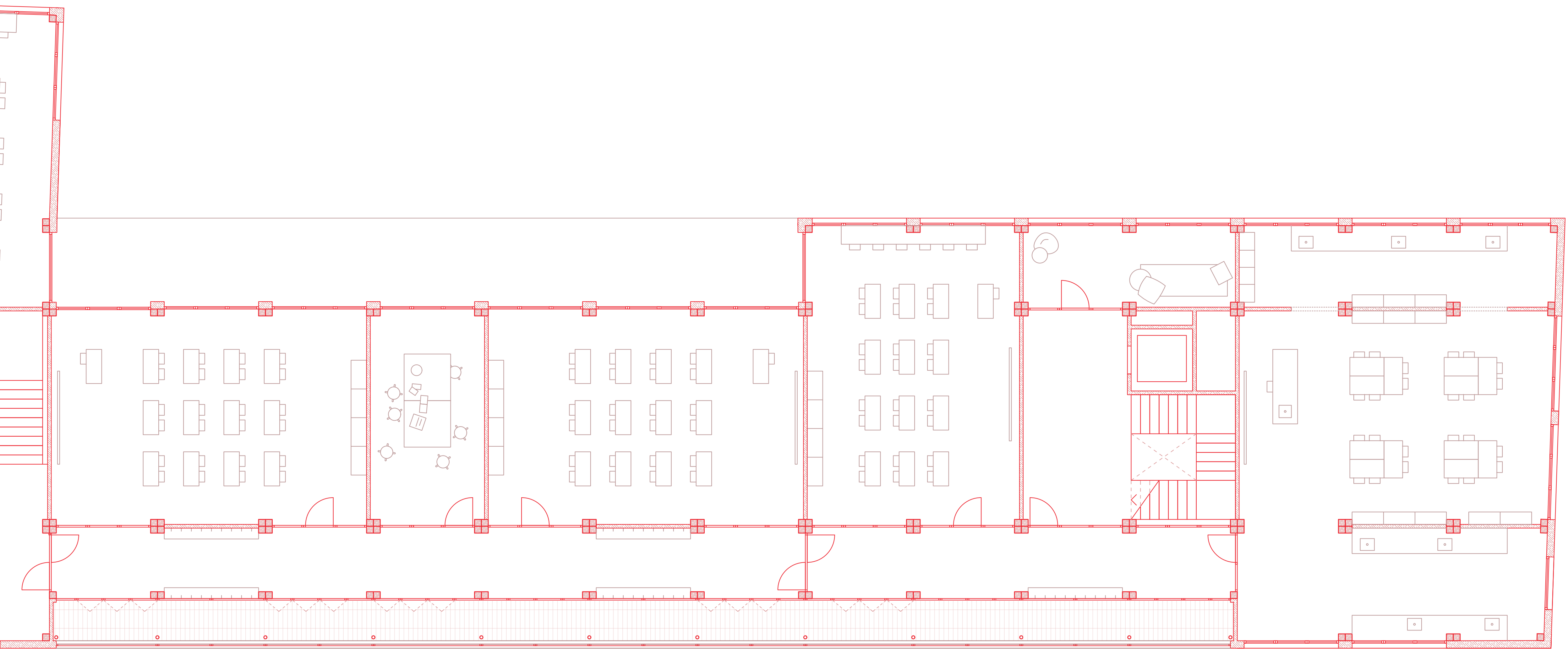








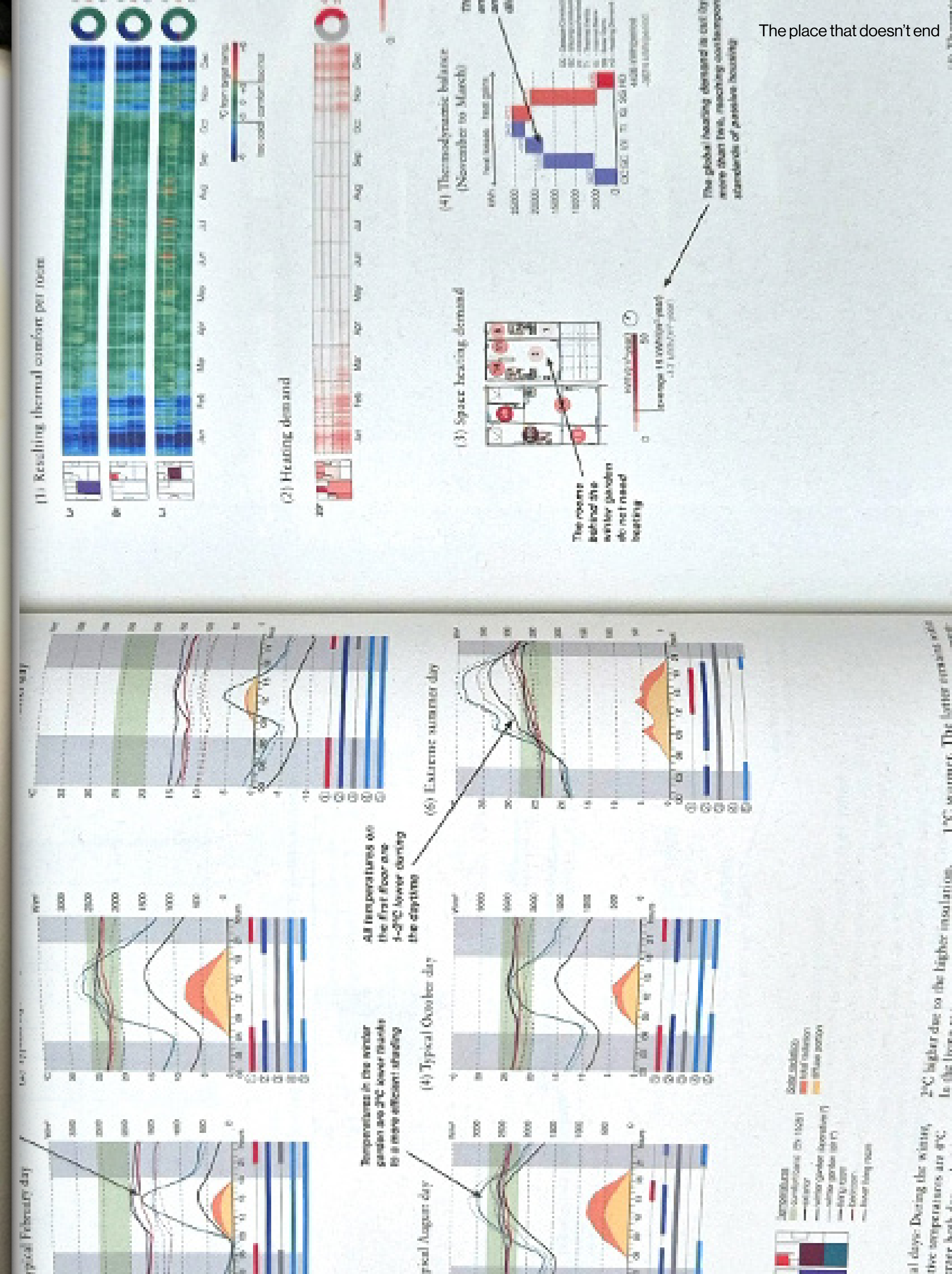
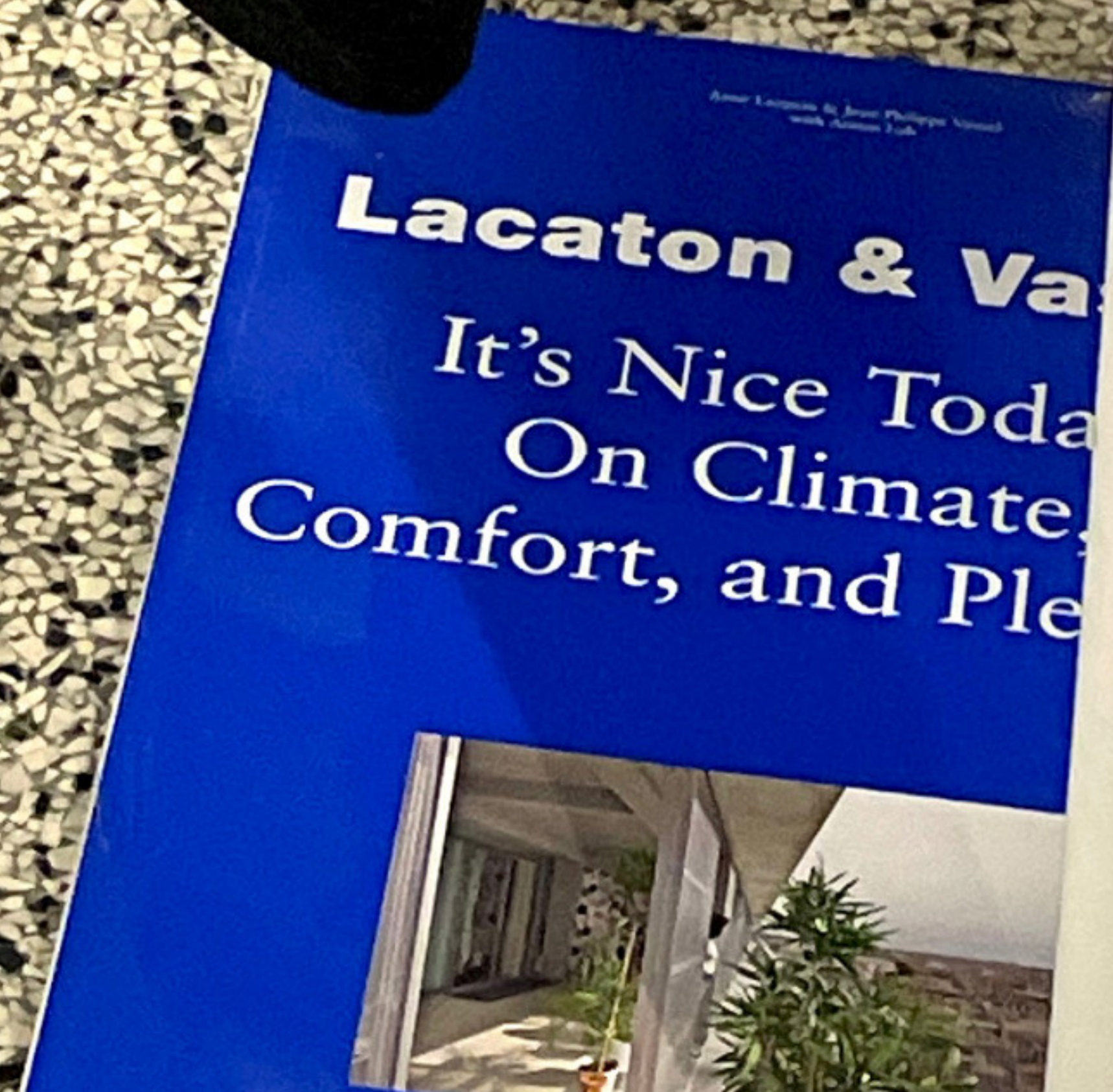




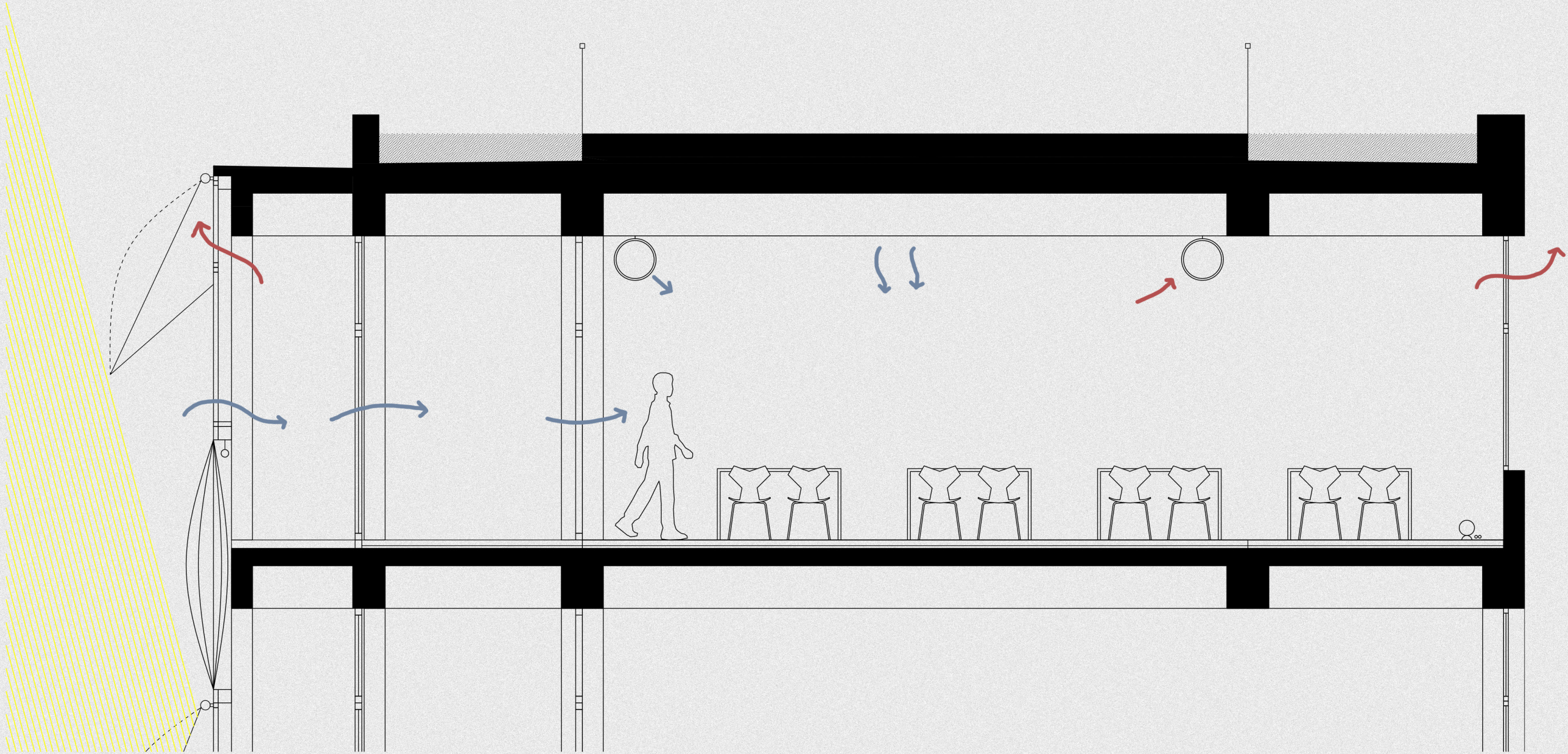






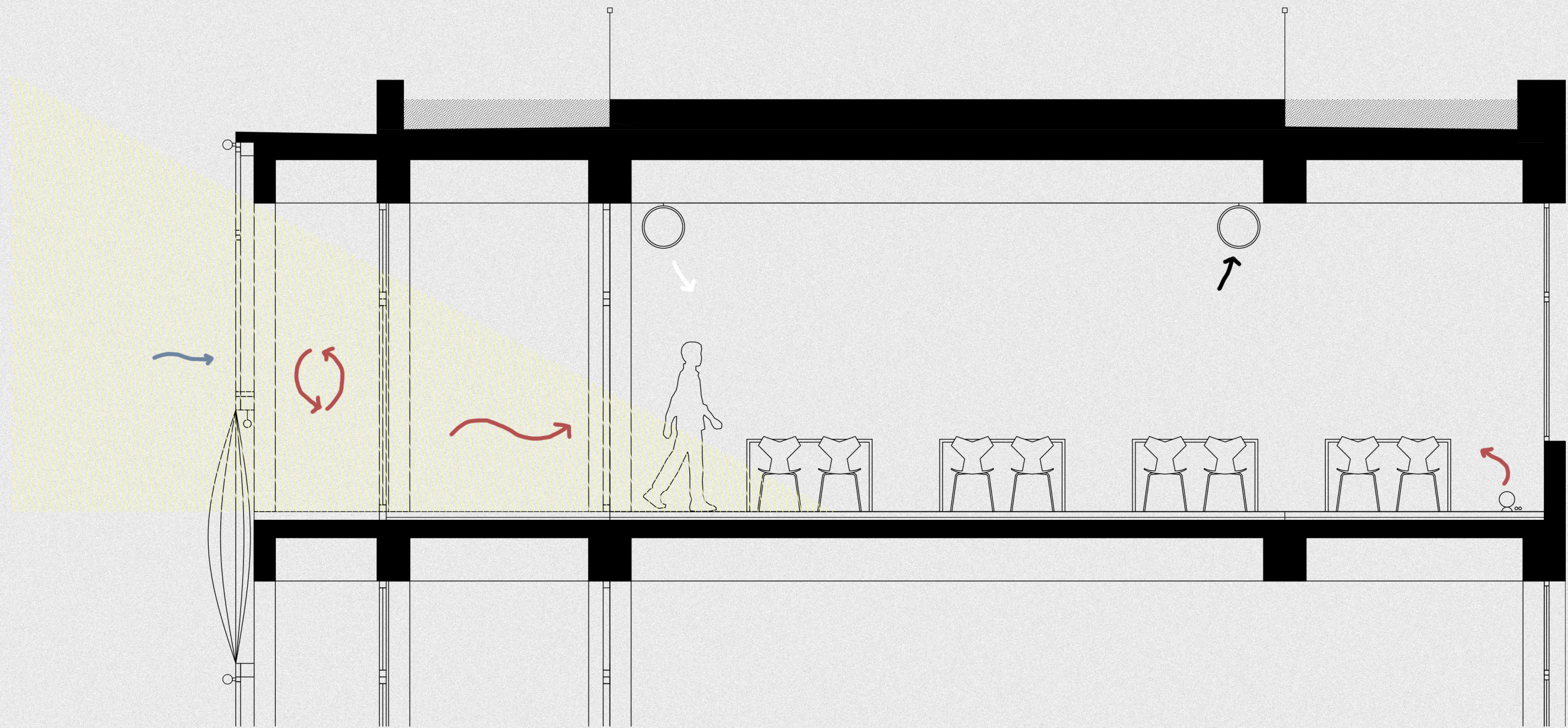






Summer





Winter



