
Gradients
of Comfort
Richard Múdry

Urban Architecture Graduation Studio
2024/2025 Low Town Down Town

Gradients of Comfort

Richard Múdry

Contents

Preface 04

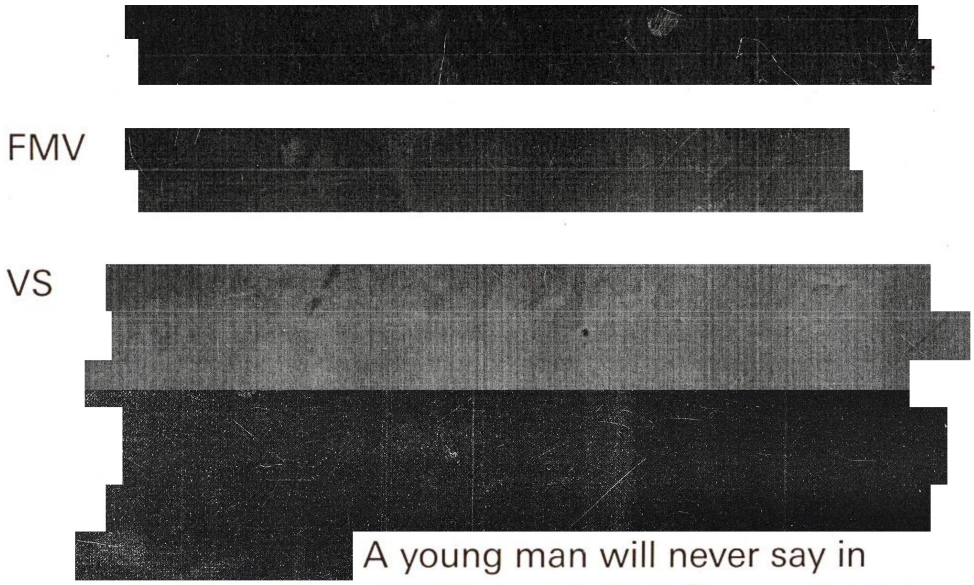
Chapter 01 *Are you comfortable, or just used to this?* 06

Chapter 02 *Uncertain conditions* 14

Chapter 03 *From the street to the city* 38

Chapter 04 *A place that doesn't end* 54

01
Author
Blikfabriek, Roof

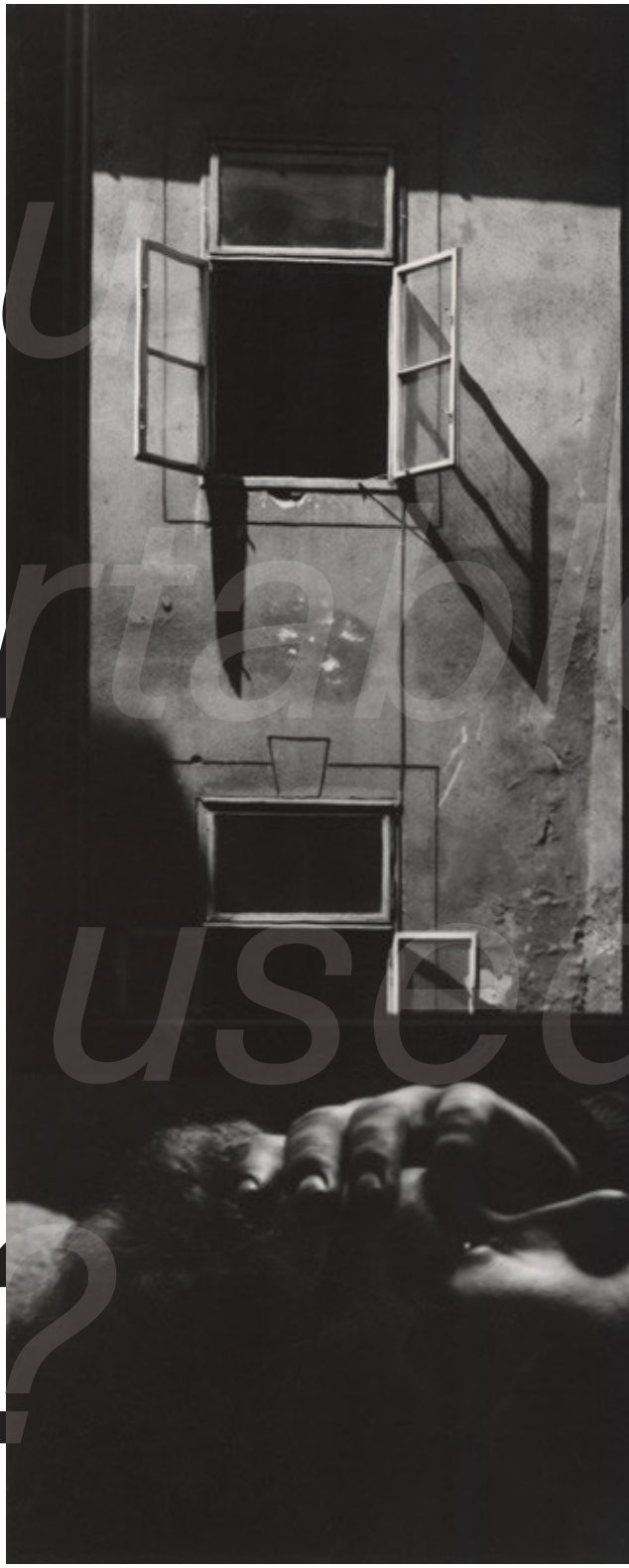


02
Moura Veiga, Francisco / Tavares dos Santos, Vasco
It takes a lot of time to be young : a long-distance conversation between a psychoanalyst and an architect

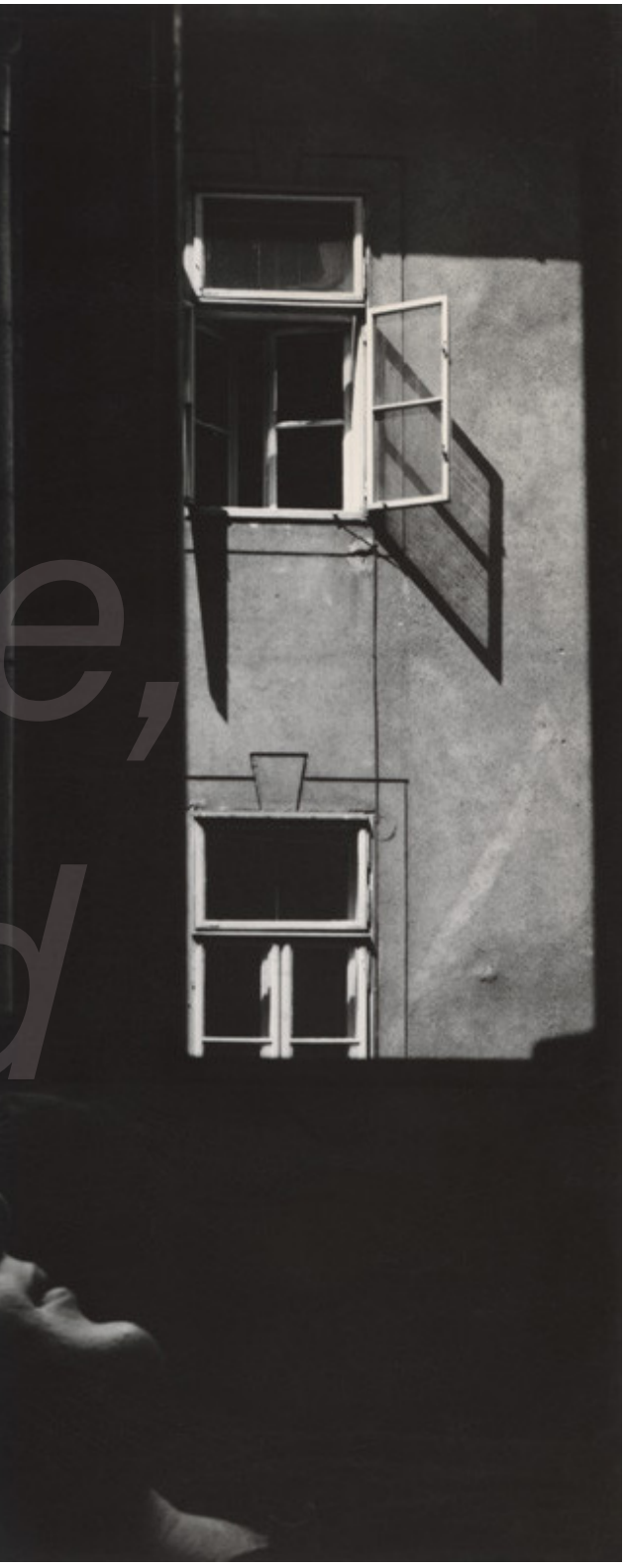
This year, the Urban Architecture graduation studio focused on a former industrial zone in Hoboken, Antwerp - an area caught between its temporary present and what it might become. At stake are urgent questions: how can we make Low Town endure as a downtown? And how might we integrate, rather than displace, the physical spaces and social networks that have emerged in its current in-between state?

My thesis project, Gradients of Comfort, engages these questions through the transformation of the former can factory known as Blikfabriek into permanent public and educational spaces. Today, comfort in architecture is typically defined in absolute terms, where anything outside a narrow band marked on comfort charts is labeled as undesired - and thus something to avoid at all costs. This binary view is embedded in the infra-spatial logic of contemporary building practice, where systems for achieving comfort - heating, cooling, lighting, and ventilation - are treated as secondary, but necessary, add-ons - mechanical and concealed, yet dominant in shaping spatial experience. In existing structures like Blikfabriek, pursuing today's standards often leads to unsustainable technical solutions and economic strain. The project instead asks how architecture might challenge this logic - by highlighting the relationship between body and environment and proposing a more layered, adaptive understanding of comfort. One that acknowledges its fragility, but sees in that fragility the potential for richer sensory experience and more resilient public architecture. In this way, the project contributes to the studio's broader inquiry into how the halfway city might retain its civic dynamics and remain open to public life, even as the move toward permanence becomes inevitable.

Are you comfortable, or just used to this?



03
Ľubomír Štecko
Windows, 1964



We have become accustomed to comfort. So much so that it rarely surprises us. It arrives invisibly - through vents, through thermostats, through numbers that make the body forget the season. We expect it, we design for it, and we rarely stop to ask what it really is.

Comfort today is rarely a question. It is an assumption.

This chapter begins with doubt. Not doubt in comfort itself, but in how narrowly we have come to define it. What once was a human instinct - to gather near the fire, to shelter from the wind - has become a system of mechanical precision. Temperature setpoints. Humidity thresholds. Thermal neutrality. A science of stillness.

In modern architecture, comfort is delivered like a product - standardised, seamless, untouchable. We draw it in diagrams, calculate it in spreadsheets. But what does it ask of us, really? And what does it take away?

Over the last century, the Western world has grown used to increasingly high and constant levels of thermal comfort - enabled by fossil-fuelled HVAC systems that warm in winter and cool in summer. We have come to expect interior climates that do not drift. But this expectation comes at a cost. Heating and cooling account for roughly 50% and 20% of building energy use, respectively (Wang et al., 2023). These are not minor side-effects - they are central forces shaping the environmental impact of architecture.

Comfort has become a technical construct - calculated, regulated, standardised. In striving for thermal neutrality, we have sealed buildings into stillness. We have, as Studio Muoto writes, created "thick thermoses" that prioritise uniformity over engagement, and in doing so, sacrifice both sustainability and the richness of sensory experience (Studio Muoto, 2023).

But this was not always so.

Our desire for comfort is ancient. The ash from one of the earliest known fires reminds us that we have always altered our surroundings to feel more at ease. But we once did so with presence, effort, and care. We moved with the sun, dressed in layers, gathered near the fire. We tuned in.

04
Peter Fischli, David Weiss
Snowman, 2020

Thermal comf
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In this research, I ask: is this comfort, or simply habit? Is this still architecture, or has it become something else?

Modern comfort, by contrast, tunes out. We sit in sealed buildings, sweating under automated systems we can no longer override. Windows don't open. Thermostats don't respond. There is a strange kind of discomfort in that.

In this research, I ask: is this comfort, or simply habit? Is this still architecture, or has it become something else?

Comfort, as it is defined today, refers primarily to thermal conditions. The technical definition - "a condition of mind" - reveals its subjectivity, yet it is still pursued through highly objective means: fixed temperatures, controlled humidity, prescribed clothing levels, predicted metabolic rates.

But perhaps comfort is not something to be delivered, but something to be discovered. A negotiation. A rhythm.

Lisa Heschong wrote, already in 1979, about the beauty of varied microclimates. That the corner near the sunlit window feels different from the shaded corridor. That such difference invites delight. More recent research supports this: Richard de Dear (2011) found that asymmetrical thermal conditions - the feeling of warm sun on a cool day, or a breeze in a hot room - can enhance comfort more than uniform environments.

What if we embraced that? What if buildings offered gradients, not constants? What if comfort meant adaptability, resilience, even pleasure?

To question comfort is not idle speculation. It is urgent. As Daniel A. Barber writes: "Comfort is in short supply. Not because the world is running out of it but because, in the face of the climate crisis, we have to collectively adjust to

its going away" (Barber, 2019, p. 44).He challenges architects - as those on the front lines - to "explore life after" this version of comfort, and to imagine "a world at the edge of discomfort" (Barber, 2019, p. 50).

We see these shifts emerging already. The European Union's emergency energy plan limits heating in public buildings to 19°C - a move that directly challenges conventional standards. But it is not only a matter of energy use. It is a cultural question. How do we inhabit change? How do we design for a world that will feel different?

This chapter opens that question. It invites to see architecture not as a sealed system, but as a climate in itself - responsive, seasonal, alive. It asks to move away from delivering uniform comfort, and toward designing spaces that allow people to sense, adapt, and participate in their environments.

Comfort is not the absence of discomfort. It is the presence of care.

This essay has guided my approach throughout. It shaped the questions I asked on site, the strategies I chose, and the forms I developed. The project becomes a translation of this argument into spatial language: a school that offers not uniform comfort, but the conditions through which comfort might emerge - varied, responsive, and alive.

Comfort is not the absence of discomfort. It is the presence of care.

Barber, D. A. (2019). After comfort: A user's guide. Columbia Books on Architecture and the City.

de Dear, R. (2011). Revisiting an old hypothesis of human thermal perception: Alliesthesia. Building Research & Information, 39(2), 108–117. https://doi.org/10.1080/09613218.2011.552269

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Studio Muoto. (2023). Projects. Retrieved June 2025, from https://www.studio-muoto.com

Wang, Q., Zhang, Y., & Chen, Y. (2023). Energy use in buildings: Analysis of heating and cooling demand patterns. Journal of Building Performance, 14(1), 25–41. https://doi.org/10.1016/j.jobe.2023.105812
(Note: This is a placeholder citation. Please confirm the actual publication details.)

European Commission. (2022). REPowerEU: Joint European action for more affordable, secure and sustainable energy. https://commission.europa.eu/repowereu_en

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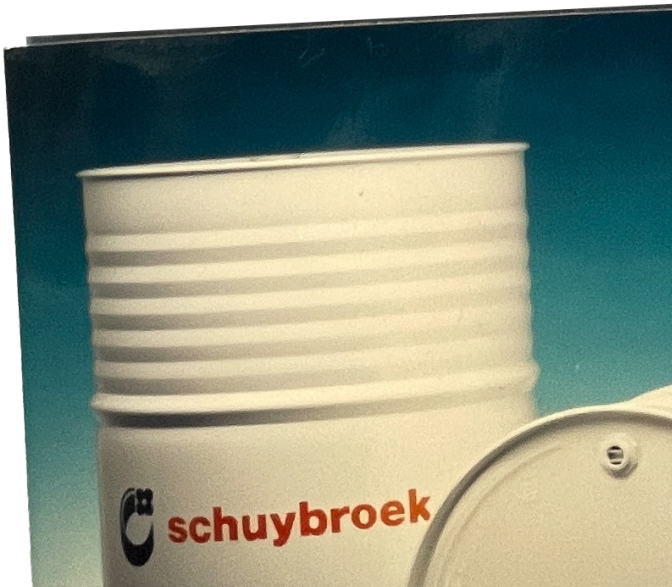
Hoboken sits just beyond the ring of Antwerp. Close to the city, but its character is different. Edges instead of centers. It's a place with memory in its walls, but space for something new. The site once held a can factory - the Blikfabriek.

City of Antwerp
Lageweg Aerial Photo, 2016

Today, its function has shifted. What remains is a mixture of remnants and potential. A new Blikfabriek has emerged - one where past and future, ruin and regeneration, overlap. A place where work and play blur together. Where skateboards meet craftsmen. But it remains temporary. Caught in between. It asks: can Low Town endure as downtown?


schuybroek
Brand-Building
1881


schuybroek

07
Author
Postcards of Blikfabriek, 2025

Together with Carolina Bongiorno, Julia Kudła, Fabian Wachter, and Sacha Oberski, we worked under the collective P1 research topic Material Garden of Gift and Waste. The title was given to us - already full of tension and generosity - but it became something we had to interpret through action. Over time, it grew from a name into a method of seeing, sensing, and assembling.

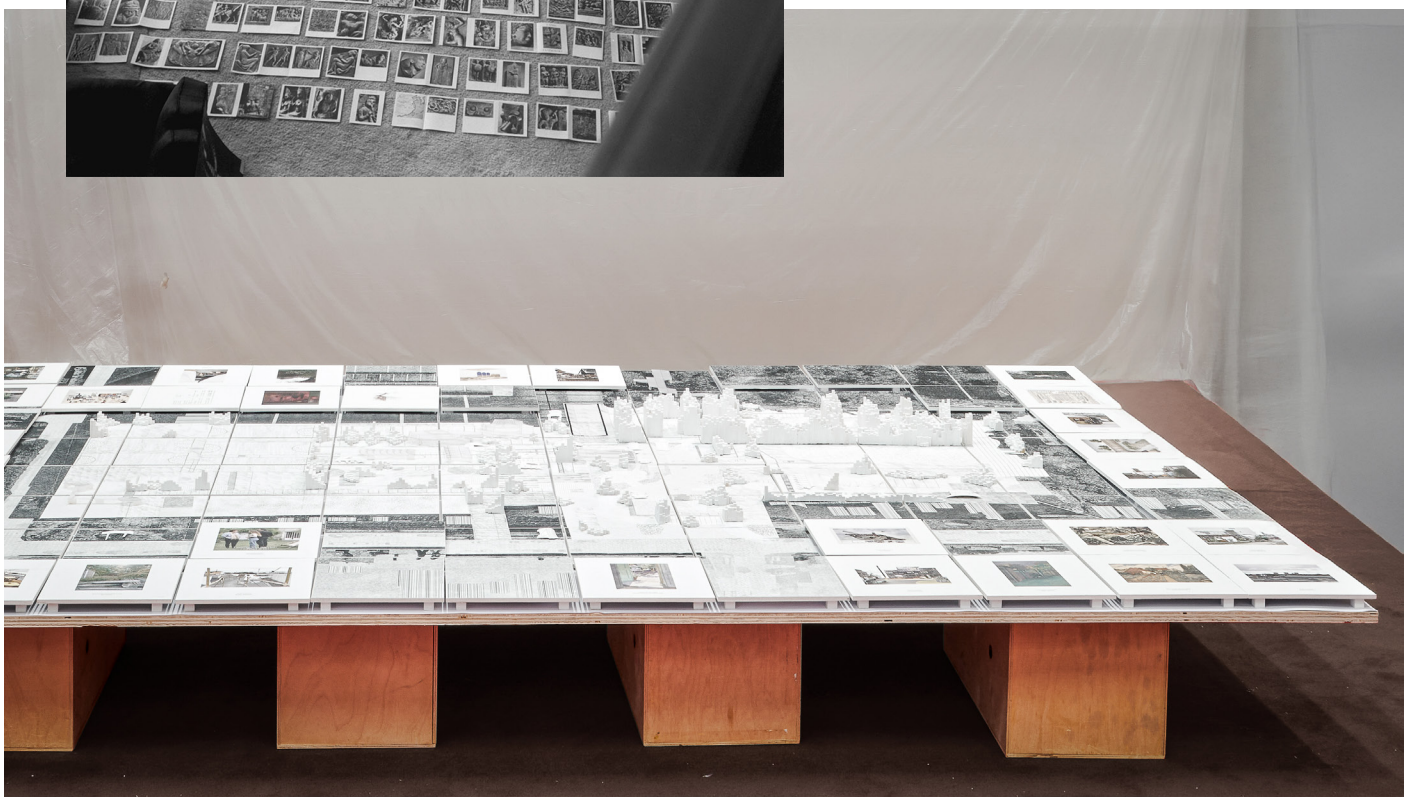
We approached Blikfabriek not as a fixed site or a tidy problem, but as a kind of garden - not idyllic, but real. Architects are fond of saying “garden.” It lends their work a softness, an air of nurture. But real gardens are not gentle. They are muddy, unpredictable, full of awkward failures and patient returns. Blikfabriek, too, doesn’t behave. It leaks, it adapts, it works around the edges. A place of weather and wear. A place where materials circulate, accumulate, and shift their roles. Things sprout, decay, return. Nothing ever truly disappears.

08
Author
Material in motion - Blikfabriek, 2025

09
Author
Materials, Blikfabriek, 2025

It was clear to us early on: the architecture of Blikfabriek is not made of walls, but of gestures. Of interactions. The comfort here is improvised. It's found in the rhythm of the program and movement of the people. These aren't architectural details. They are responses - seasonal, social, spatial.

So we borrowed the lens of the garden not for its aesthetics, but for its logic. Gardens do not stand still. They demand attention, accept change, and reward patience. To understand this space, we had to let go of the single image. Following Bruno Latour, we moved instead through fragments. We accepted that no one perspective could hold the whole. The visible, as he says, is always partial. Meaning emerges in movement - in pathways, traces, and overlaps.



10
Authors
Material Garden of Gift and Waste

11
Maurice Jarnoux
André Malraux 1947

Our exhibition embodied this approach. We cast 46 tiles - carefully made, but never fixed. Arranged as a field, they could be turned and shifted by the visitor. Each tile carried a piece of the site: a gesture, a surface, a moment. The model was not an object, but a tool for reassembly - a tactile archive of a living place.

We saw the site as both grounded and ungovernable. Blikfabriek exists, we came to understand, at the intersection of the rigid grid below and the uncontrollable sky above. When the grid tightens - when control takes over - Blikfabriek recedes. But when the grid loosens, it comes to life in the spaces in between: between order and mess, between digital and material, between the official and the improvised. It dwells in a kind of ordered chaos - not a utopia, not a wilderness, but something else.
And yet, this life is not on display. It hides in plain sight, shielded by walls and habits. It unfolds in the half-light. But when your eyes adjust to the dark, the patterns reveal themselves. Seasons take shape. Movements become legible. What once seemed arbitrary begins to make sense.

We stood again on the roof at the end of our research - where we had first stood eight weeks before. Beneath us, the rooms and workshops hummed softly. The black roofs stretched out, the clouds moved slowly overhead. In the distance, the city of Antwerp curled along the river Schelde. Blikfabriek, still below us, was no longer abstract. It had become layered. Familiar. Alive.
This research was not just a study in method or material. It became, for each of us, a way of paying tribute. A counter-gift to the place. A way of recognising its idiosyncrasy, its charm, its complexity. We breathed its sawdust. We slept on its floors. We carried its traces with us.
Blikfabriek, we realised, is both the smallest parcel of the world and a total world in itself.

What stayed with me wasn't a singular image or solution - it was the way things hung together. Or rather, how they sometimes didn't, and still worked. That thick air of possibility, the feeling that the place could shift again tomorrow. That's where I began to understand comfort not as control, but as invitation.

12
Authors
Material Garden of Gift and Waste

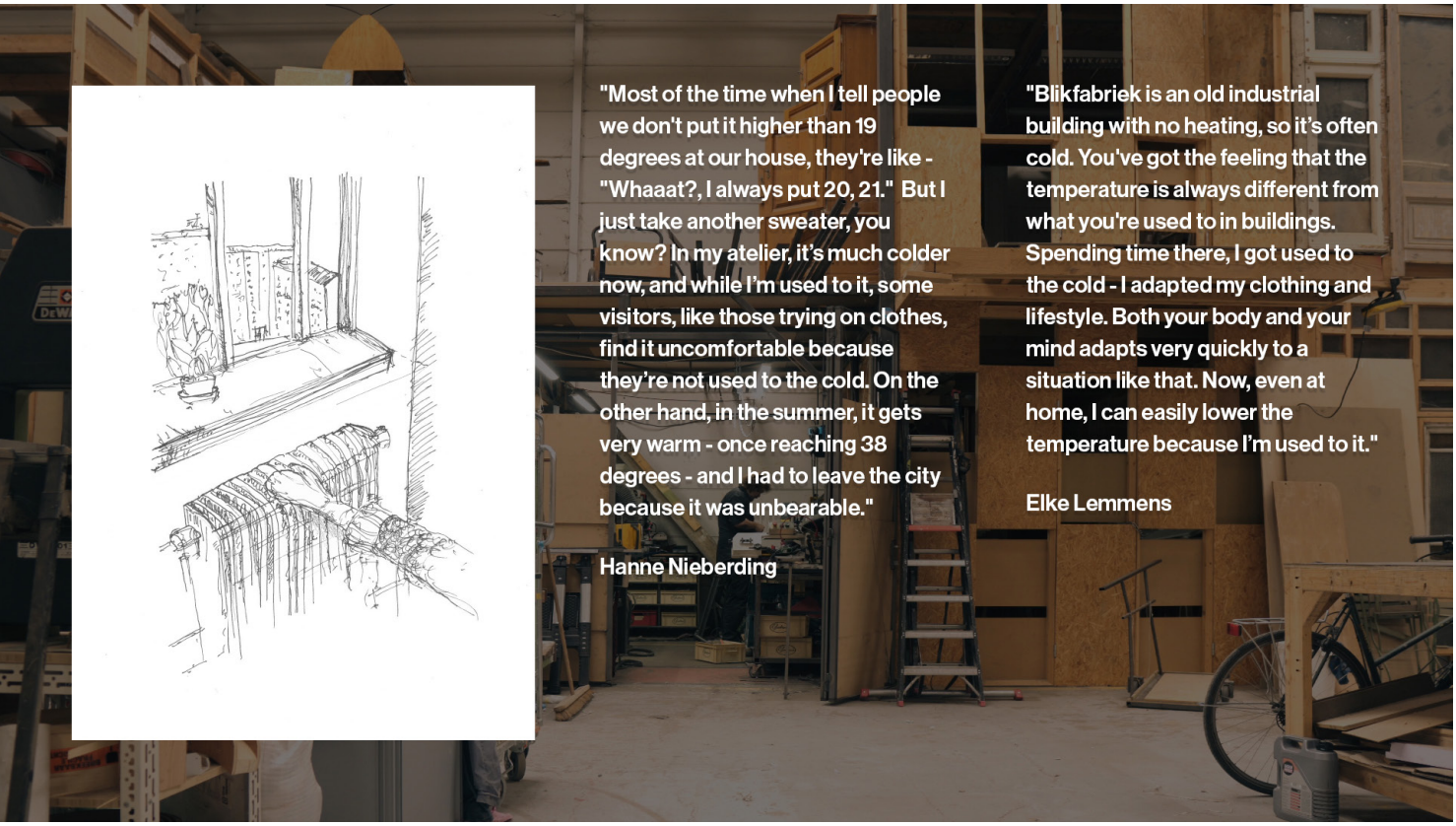
From the shared garden, I turned inward - to the subtler negotiations of comfort and discomfort that unfold within it. If the Material Garden taught us to trace material flows, gestures, and transformations, my own research sought to understand what it means to feel within such a space. At Blikfabriek, I asked: how do people perceive comfort? What do they do when it slips away? And what do they learn from its absence?

13
Miles Fischler
Blikfabriek, 2019

I spent time in the spaces people had shaped - rooms warmed not by systems, but by habits. I listened. I observed. I asked questions. And what I found was not a single answer, but a quiet abundance of strategies.

Elke Lemmens told me how she sleeps in her atelier during winter nights, using only an electric blanket - never heating the whole room. “It’s so simple,” she said. “Even though everything around me is freezing, I stay warm.” In another breath, she described how her body and mind adapted over time: “Now, even at home, I can easily lower the temperature because I’m used to it.”

This capacity to adapt appeared again and again. Some layered sweaters. Others rearranged furniture to chase the sun. One person found calm in the chaos. Another fled the heat. Each made choices - material, behavioural, perceptual - that shaped their own climate.



"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

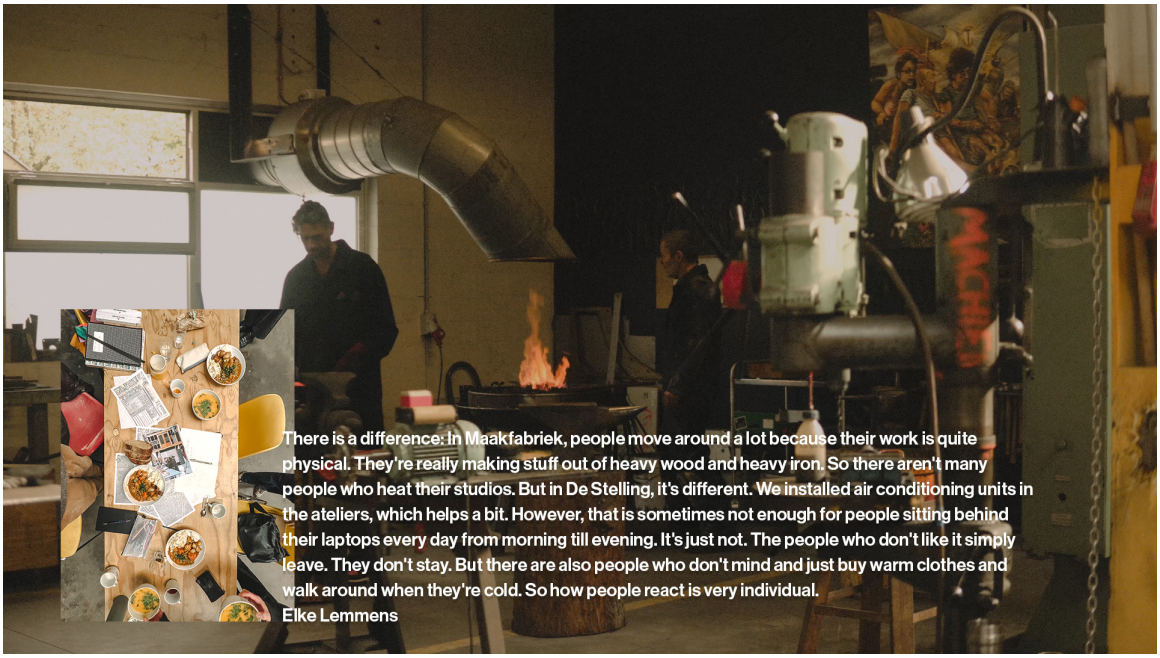
"Blikfabriek is an old industrial building with no heating, so it’s often cold. You've got the feeling that the temperature is always different from what you're used to in buildings. Spending time there, I got used to the cold - I adapted my clothing and lifestyle. Both your body and your mind adapts 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

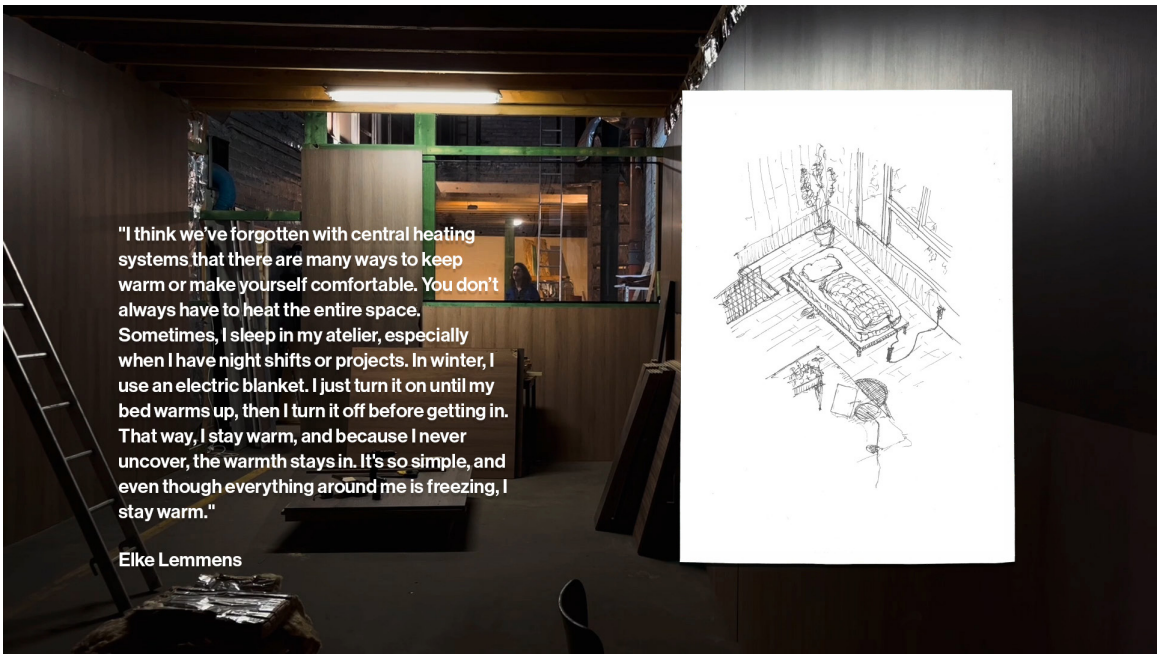
15
Author
Interviews Blikfabriek,2025

"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



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



"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

34. Man as the central measure in architecture.

16
Author
Collage - Sander x Old Comfrot

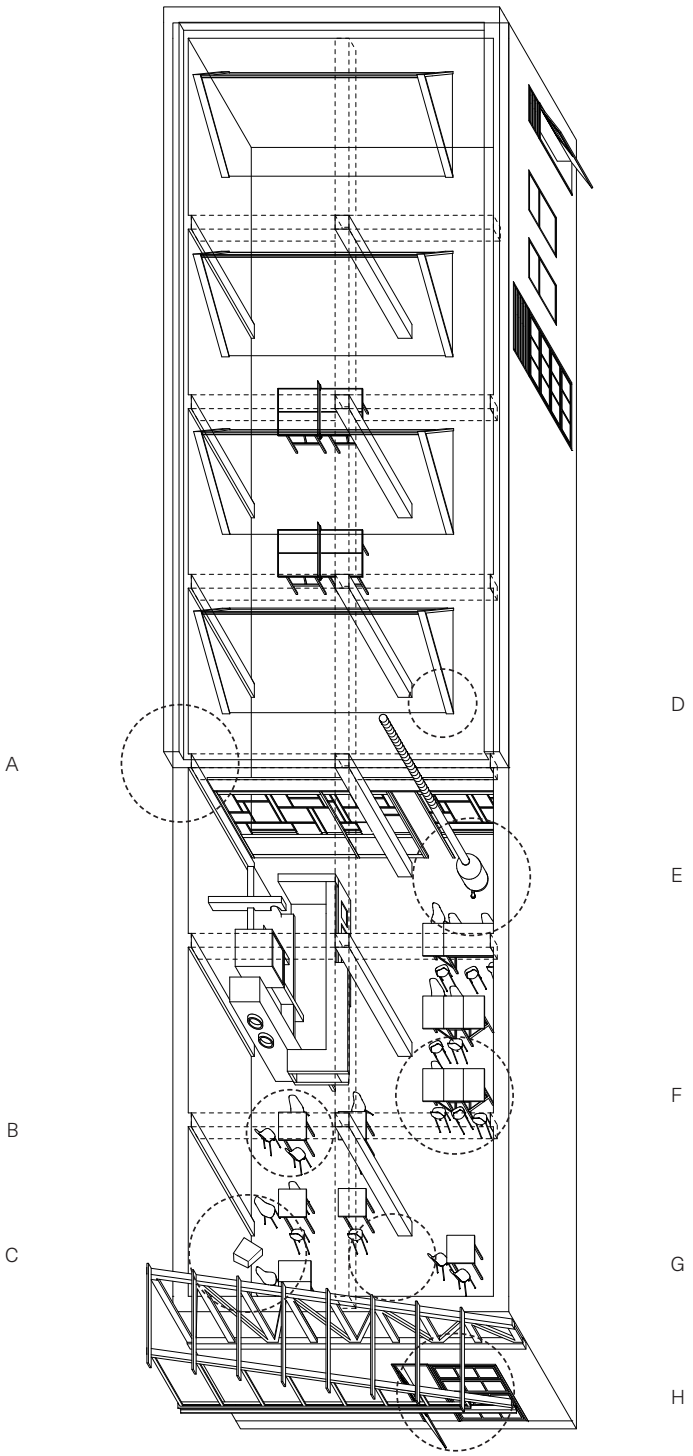
Comfort here was not delivered by machines. It was invented in response. It was local. Partial. Seasonal. “Most of the time when I tell people we don’t put it higher than 19 degrees,” said Hanne Nieberding, “they’re shocked. But I just take another sweater.” When it gets too hot, she leaves the city. When it’s cold, she adapts. “Both your body and your mind adjust,” Elke added. “You get used to it.”

In these responses, I found what my earlier essay had only proposed: that comfort is not a fixed state. It is relational. It is shaped in the in-between - between warmth and cold, between exposure and enclosure, between habit and invention. What some see as hardship, others see as a rhythm. And no one, truly, is passive.

The architecture of Blikfabriek may not meet conventional standards of comfort - but it allows people to act, to adapt, to care. That, perhaps, is its quiet success. It doesn’t solve discomfort. It gives it space to be worked through.

17
Author
Cantin Comfort, 2025

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℃



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18
Author
Cantin Comfort Details, 2025

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H

19
Author
De Stelling, 2025

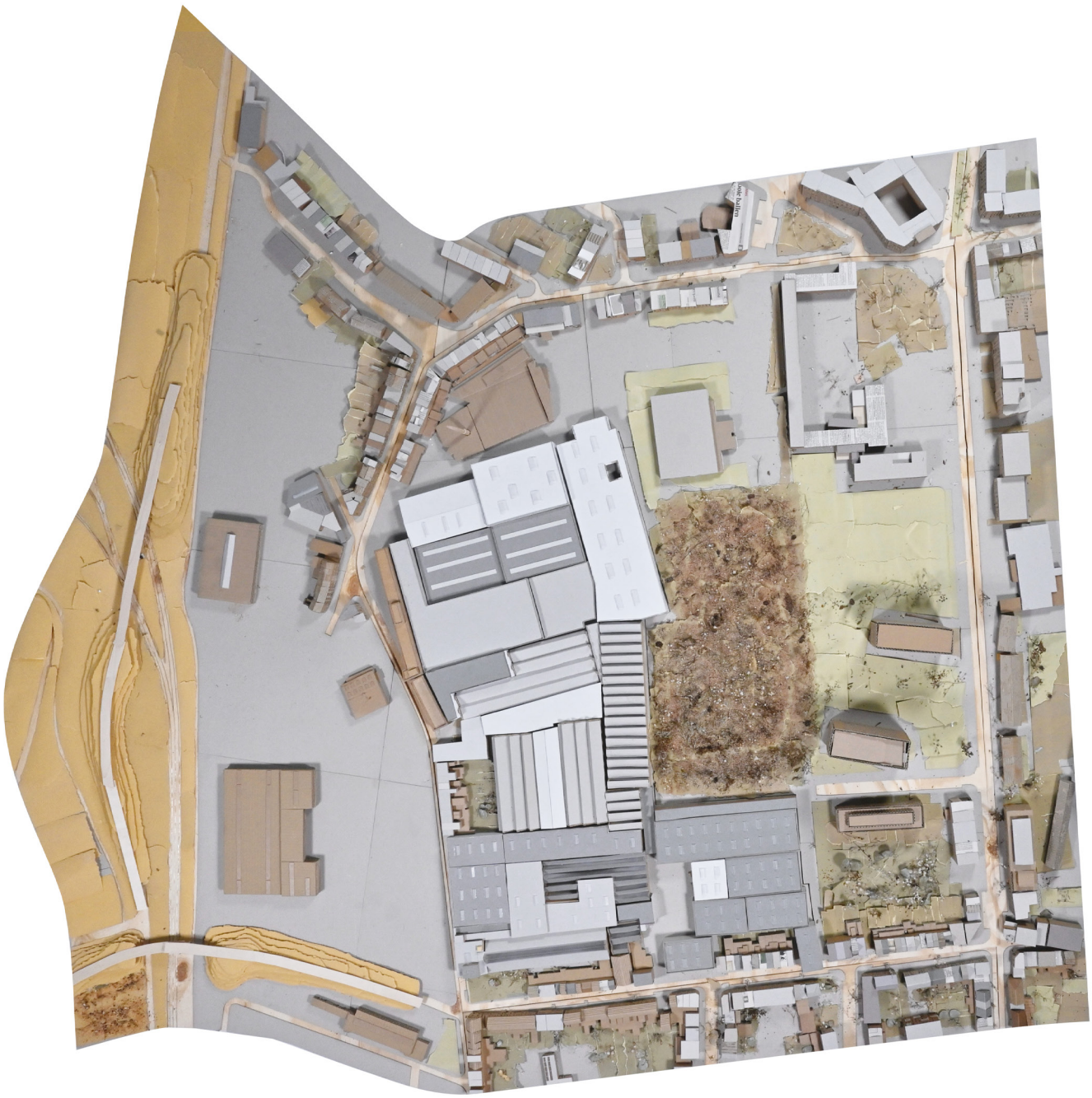

Observing Stelling
Winter / 20.01.2024 / 930
Sunrise 835 / Sunset 1712
Cloudy & Humid
Exterior air temperature -1°C
Interior air temperature 10.4°C

From the street to the city

Having explored the Blikfabriek site through collective and individual research, we arrived with Sacha Oberski and Barten Verschoor at a shared task: to draw together our findings into a common ground, to develop a masterplan. It marks the transition from analysis to proposal, from observation to spatial strategy.

20
Barten Verschoor
Around Blikfabriek, 2025

The site lies where Antwerp begins to loosen, and the district of Hoboken begins - on its northern edge, between railway lines, warehouses, and rows of housing. Here, a patchwork of abandoned and temporarily reimagined halls holds traces of former industry and present improvisation. The Blikfabriek, as a temporary collective project, gestures toward what could be possible - spaces made active through use rather than design. But much of the site remains inaccessible, sealed off, or forgotten.



SIte model 1:333 / Existing Situation

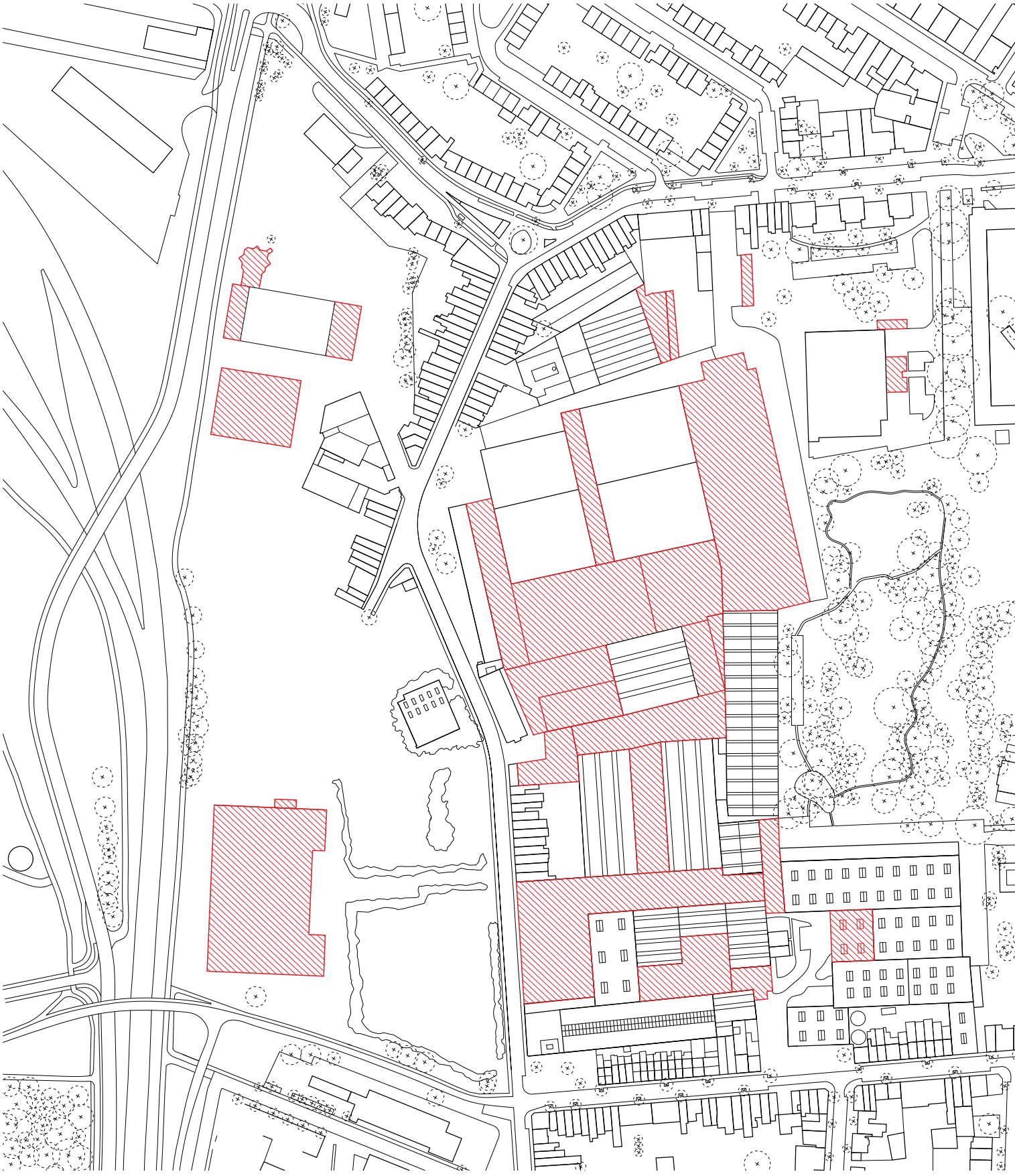
21
Authors
Collective Site Model / 1:333

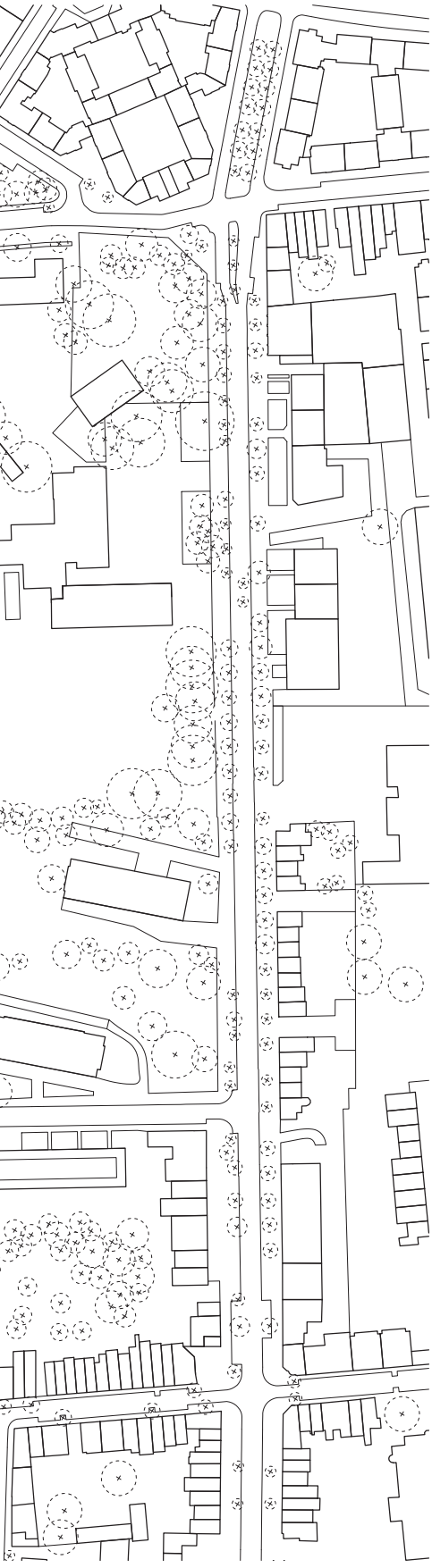
Our starting point was the Lageweg. Today, it feels like a one-sided street, with most of the activity pushed to the north. On the south side, the backs of industrial halls cast a long shadow. We asked: how might the street become more complete?

22
Barten Verschoor
Around Blikfabriek, 2025

One building stood out. Once an administration building for the industrial complex, its brick façade suggests a different way for industry to meet the street - to become urban. It turns toward Lageweg as if to begin a conversation, but there is no reply from the other side. In our 1:33 model, we focused on its spatial presence. The setback opens a view and creates a moment of pause. It hints at how the street could begin to act not only as a line of movement, but as a place to stay.

23
Authors
Site Fragment / 1:33

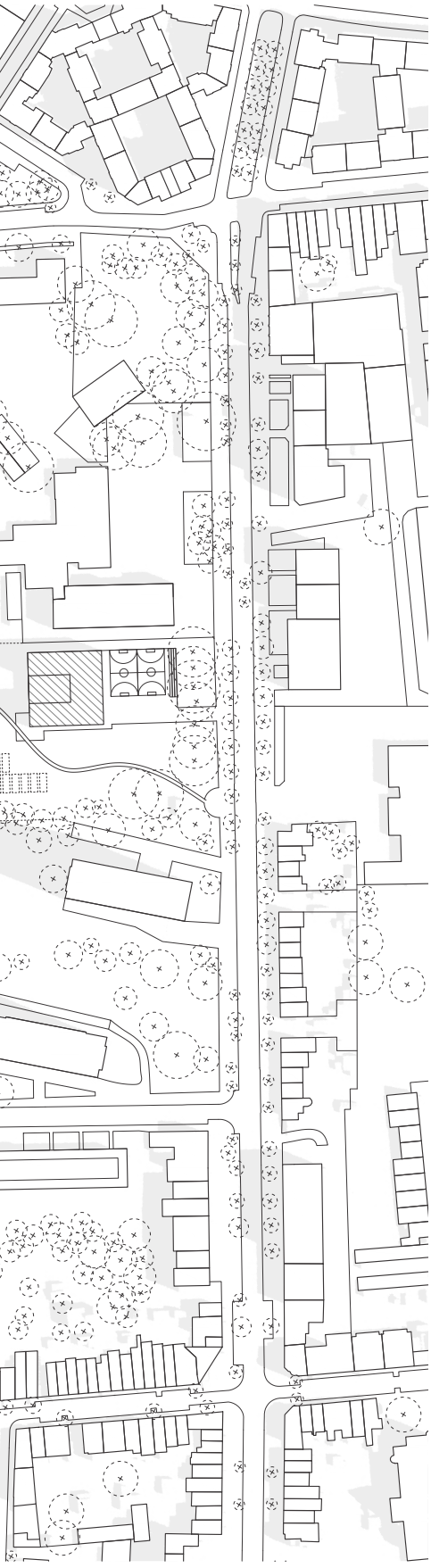




At the same time, we read the site through another lens: that of water. Flood maps reveal that the area is threatened by recurring floods - both in the past and today. Our proposal responds to this: the ground must remain open, able to absorb.

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

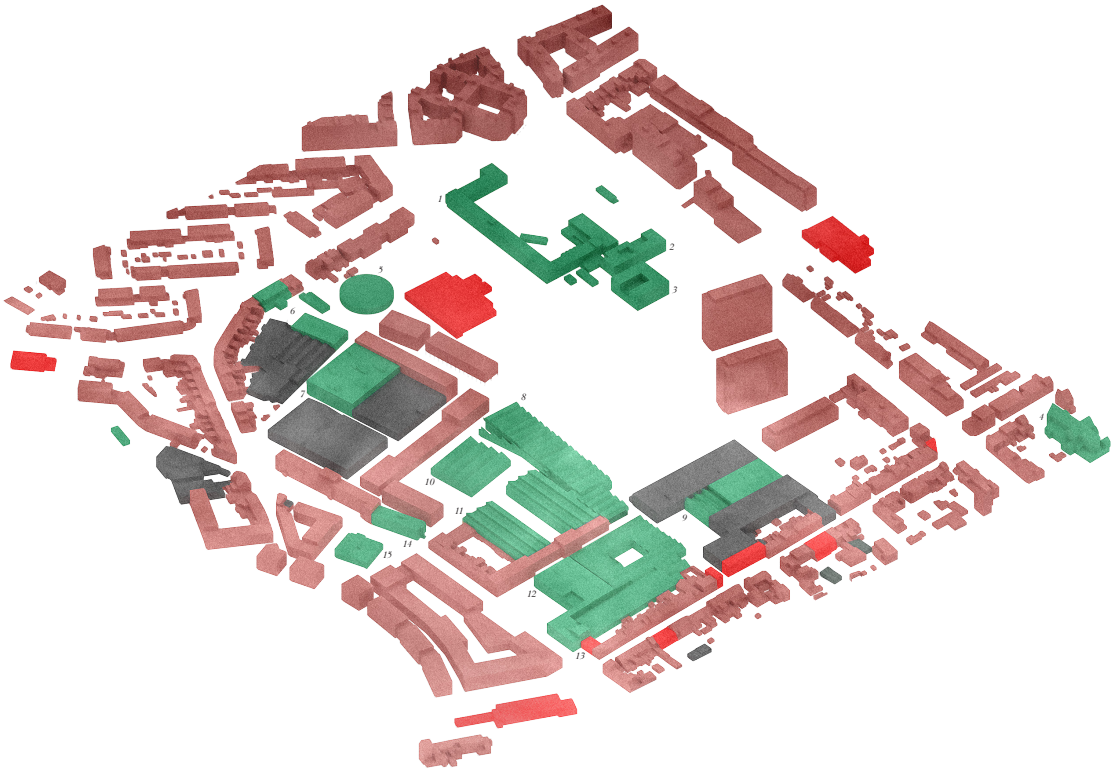
What follows is a series of subtractions. Some structures, too damaged or inflexible, were removed. Others held enough quality to stay or reconfigurate. Their arrangement helped guide a new network of paths, passages, and courtyards - allowing both movement and infiltration.



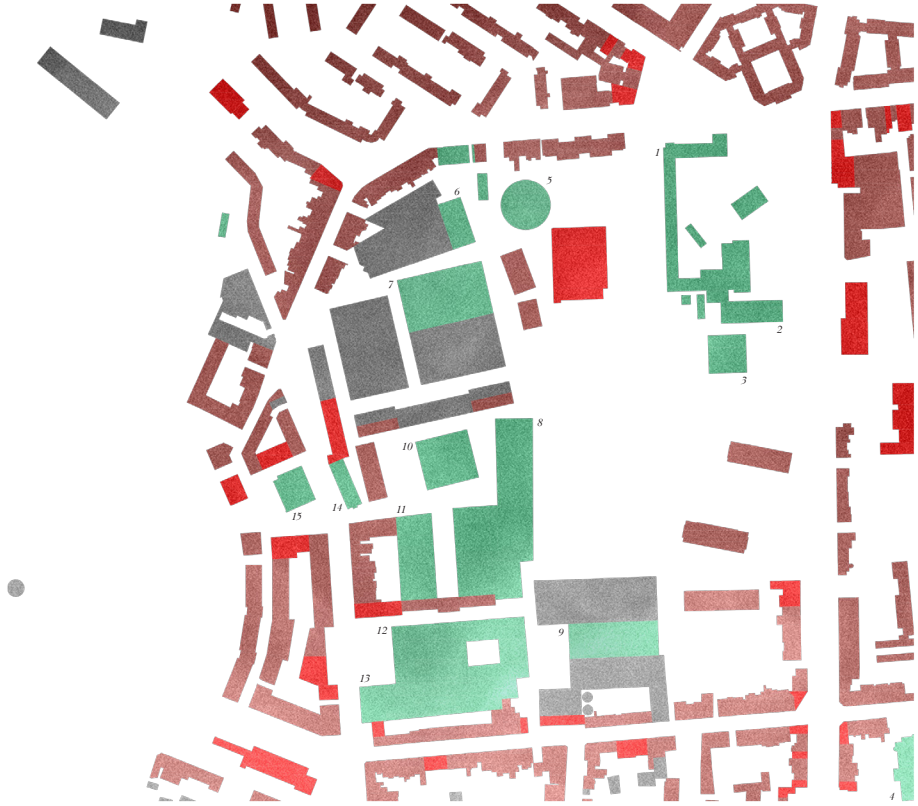
Two ambitions translate into the proposal. First, to give Lageweg a second face - an urban front on both sides. The north western edge, once incomplete, is filled in with new buildings that respond to the topography and introduce a new scale in between the industrial halls and the row houses. Lageweg itself is redrawn and extended in character. Once an edge street, it becomes a central one, its new profile shaped by setbacks forming new public spaces.

Second, to open the industrial halls. Where once there was enclosure, now there is porosity. A mix of reuse and intervention allows for a layered sequence of spaces - some public, some shared, some intimate.

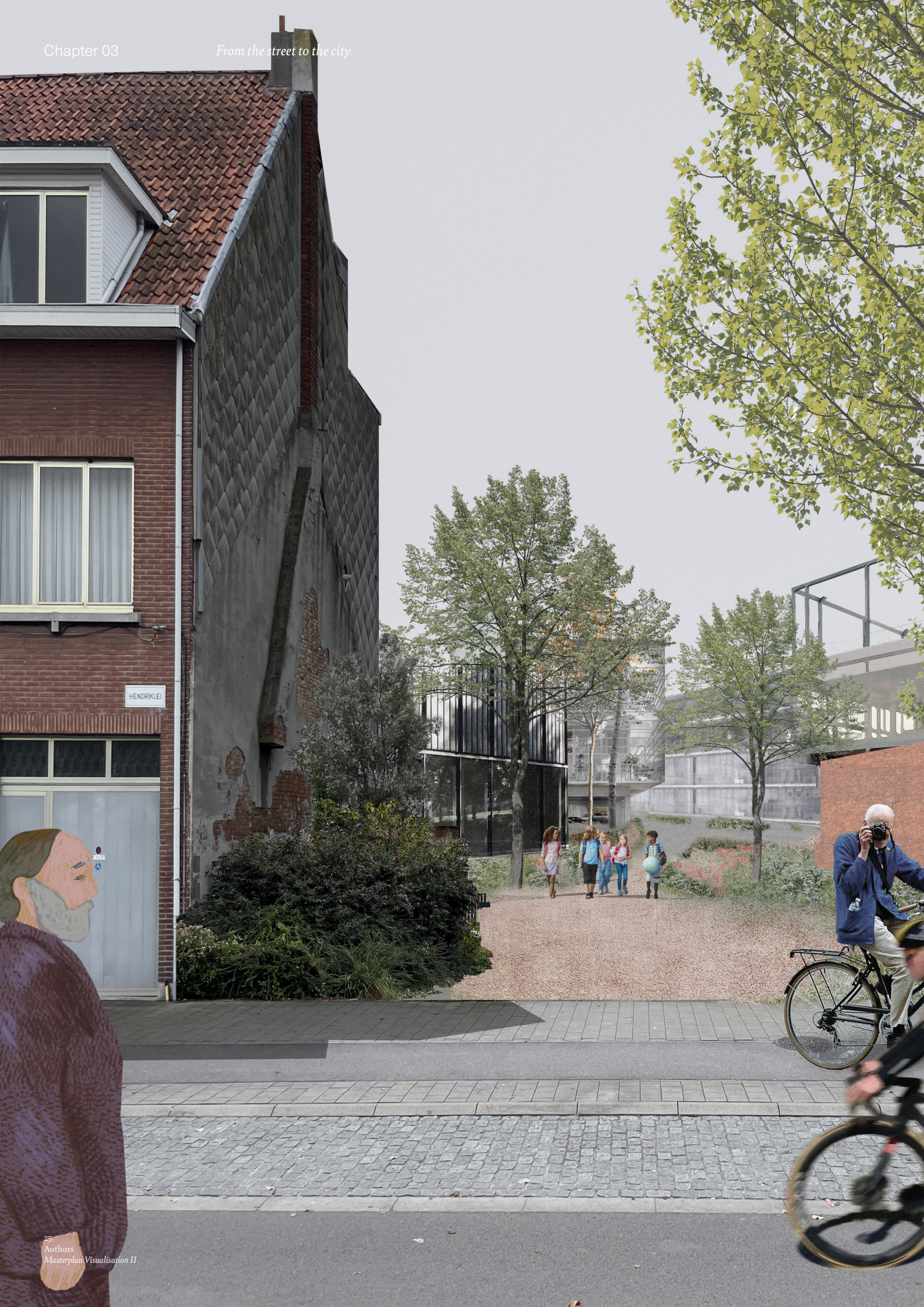
A linear park along the railway forms the edge. Not just green, but working - holding water, offering space. It gives the site something continuous - a green band that connects the site to the city beyond.



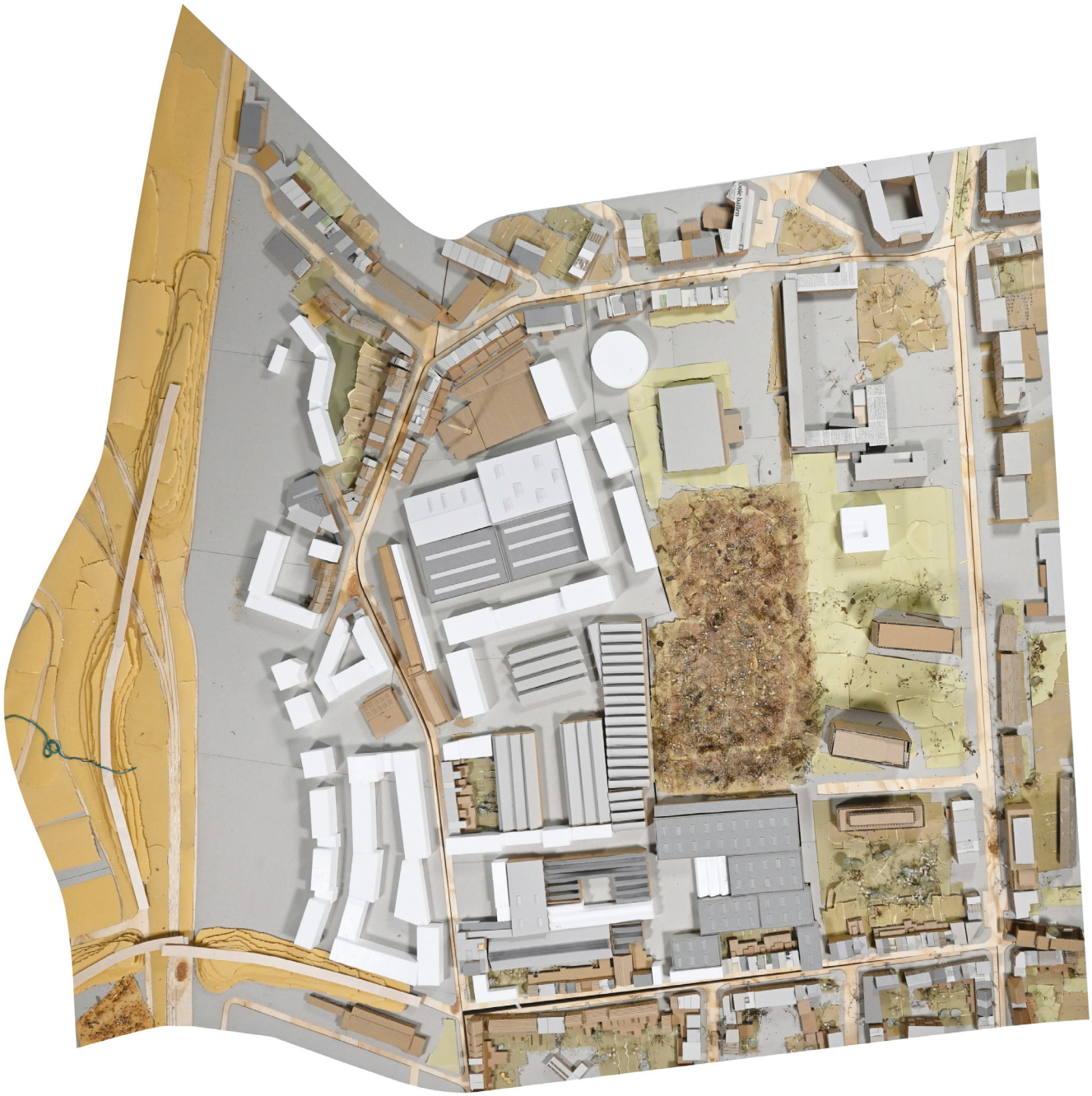
Predominant Program
Brown - Housing Red - Local Economic Activities Green - Urban Facilities Grey - Industry & Businesses



1. Secondary school 2. Primary School 3. Secondary School + Sports Hall 4. Catholic Church
5.Swimming Hall 6. Primary School 7. Neighborhood Parking + Sports Fields 8. Vocational School
9. Bar / Music / Maakfabrik support + Sports 10. Library 11. Theater 12. Blikfabriek
13. Dance School 14. District Center 15. Neighborhood Center


HENDRIKLEI

The masterplan is not a tabula rasa. It continues the grain of the surrounding neighbourhood: small-scale commerce, education, housing, industry. But it expands the typology. On the industrial ground, we propose a broader civic programme - a theatre, schools, sports halls - put together with housing and shared outdoor rooms.



SIte model 1:333 / Masterplan proposal

27
Authors
Masterplan Visualisation III

This is a project of adjustment. It listens to what is there, and acts with care and precision. It works not by erasure, but by calibration - adding, subtracting, and opening - so that the next life of the place can emerge slowly, in relation to its past.

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Authors
Collective Site Model II / 1:333


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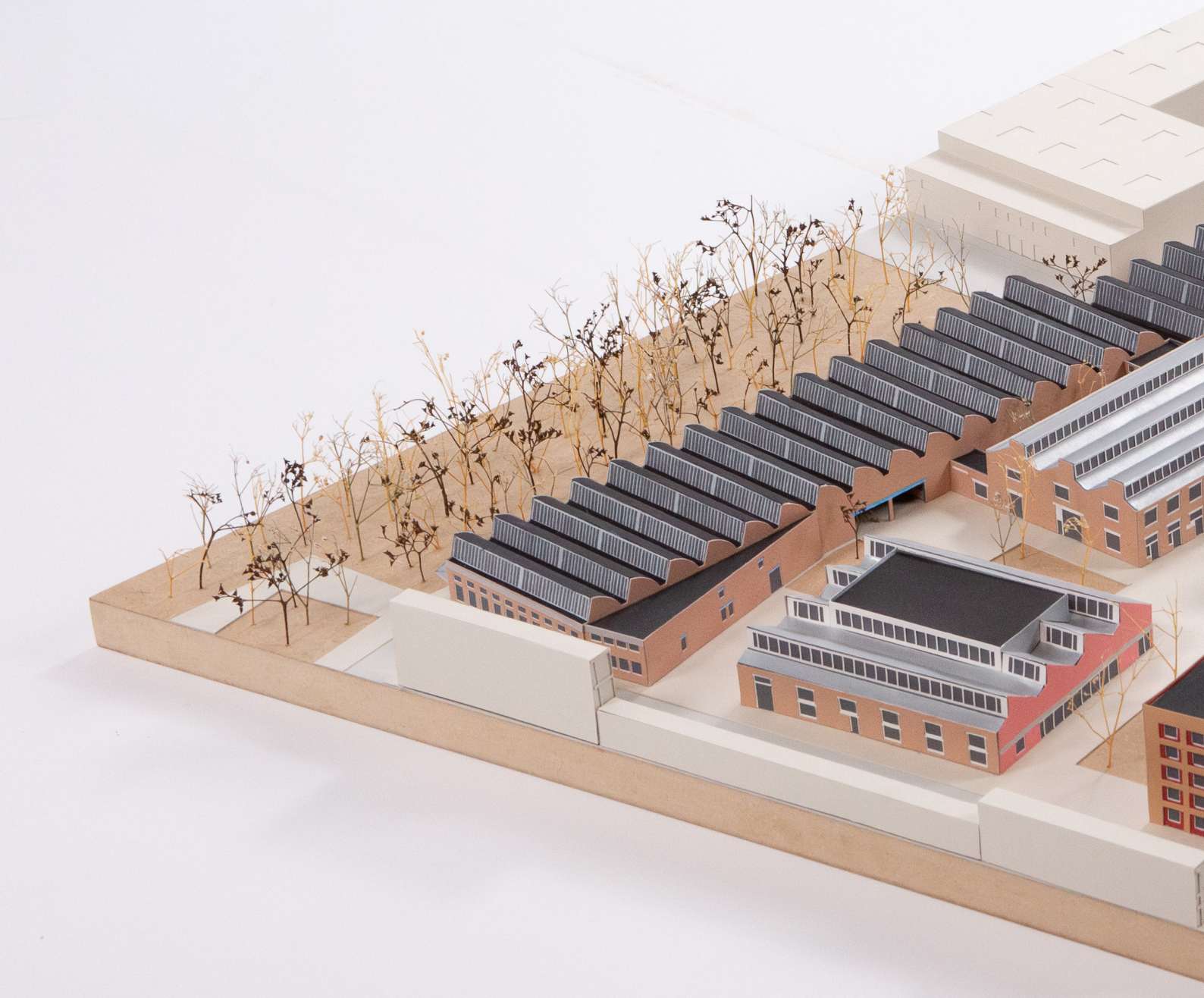
This final chapter introduces the design proposal for a new secondary school and the transformation of the Blikfabriek site in Hoboken.

While the architectural drawings are presented separately in the accompanying A2 folder, this section focuses on the ideas behind the project. Through key spatial principles, climate diagrams, and photographs of the working site model, it communicates the intentions that shaped the design.

What follows is a finished proposal - rooted in context and shaped by climate. A framework that brings together old and new structures to create shared ground for learning, making, and gathering.



29
Authors
Collective Site Model II / 1:333

It is a finished design - but not a fixed one.

Shaped by context, climate, and community, the school builds on what is already there - industrial halls, neighbours, skatepark, and blikvelde. It doesn't impose; it threads itself in, as layers of industry once did before it.

It does so in a place where the city feels young - full of noise, movement, and lives being shaped. In Hoboken Noord and Kiel, where families are large and futures uncertain, space is more than a backdrop. It is a chance. A school here must be more than classrooms; it must be a place to gather, to retreat, to belong.

The old industrial halls offer more than shelter - they offer memory and openness. They can become spaces where learning blends with daily life, where play, work, rest, and encounter happen side by side. A school not set apart, but built into the daily life of the surrounding neighborhood.

These excerpts are drawn from city publications and analyses focused on the Lageweg site and the surrounding neighborhoods of Hoboken and Kiel.

They highlight the area's growing youth population, its socio-economic challenges, and the potential of existing industrial structures to become meaningful spaces for education.


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 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 context 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.'

114

115

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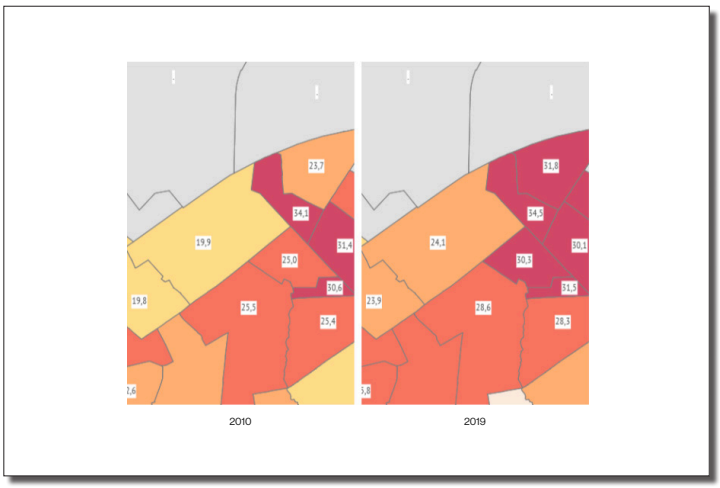
Creating places for young people to do their thing, both indoors and outdoors, is a specific point of attention. This is what emerged from conversations with the neighbourhood workers. Young people are looking for a (re)creative space, a place and a chance to meet. The old factory rooms could for instance serve as youth, reception and meeting spaces for the surrounding neighbourhoods.



The neighborhoods show a significantly higher proportion of young people (24.1% and 27.2%) compared to the city average of 22.6%, with this youth population continuing to grow in recent years. More notably, in the surrounding areas of Kiel and Hoboken Noord, over 30% of residents are aged 0-17, substantially above the city average. This youth-heavy demographic is further emphasized by the larger household sizes (2.41 versus city average of 2.19) and a growing proportion of families (35% and increasing, compared to the city's 28.7%). The area's high population density, combined with a significant immigrant population (52%, including substantial Moroccan and Turkish communities) and higher rates of lower education and unemployment, suggests that accessible, local secondary education is crucial. Without nearby secondary schools, these young residents – many from lower-income families who may face transportation challenges - could face significant barriers to accessing quality education, potentially perpetuating cycles of limited educational attainment and economic opportunity in the community.

Some halls are kept, others removed. In their place, new relationships are formed: a square opens to the street, a path runs along the north, courtyards anchor the interior. New volumes settle in among the old, aligning with their geometries, stepping back where needed, touching where possible.

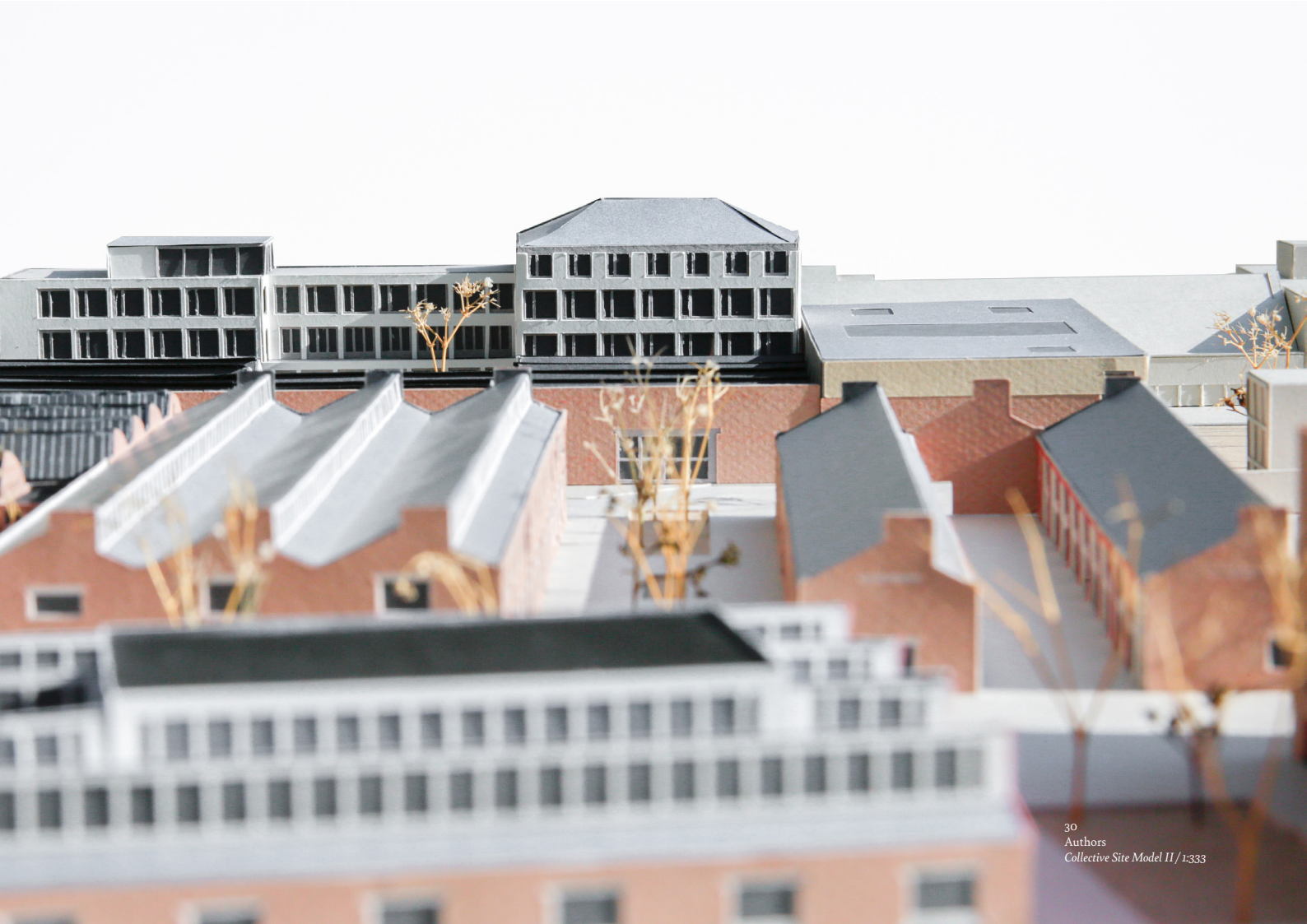
The result is a layered site – spatially and climatically. From fully open to fully enclosed, from uninsulated to thermally controlled, the design creates a deliberate sequence of environments. These transitions are not only architectural - they shape how comfort is experienced.

The spatial progression begins at Lageweg, where a removed hall gives way to a new covered structure. Roofed but unconditioned, this generous outdoor hall acts as a shared entrance and climate-buffered public space.

This structure holds three zones: a sports hall; a new insulated wing of Blikfabriek with café, performance space, exhibition, and backstage; and the central roofed but open hall, connecting them both. The café opens to the public square and the hall, extending use across the day.

From this central space, the project opens outward. One route leads into a steel-framed hall used for exhibitions, performances, and markets. Another into the school foyer: double-height, thermally enclosed, with views into the courtyard.

Within the school, classrooms and shared spaces are arranged around this inner courtyard. After ascending the main staircase, pupils are welcomed by the southwest façade and a long, narrow winter garden that runs along the length of the building. From here, they overlook the rooftops of Hoboken This space acts as a passive climate buffer - warming in the low sun of winter, ventilating deeply in summer, and offering informal moments between inside and out. On the northeast, a tall atrium enhances natural ventilation through stack effect, drawing air across the section.



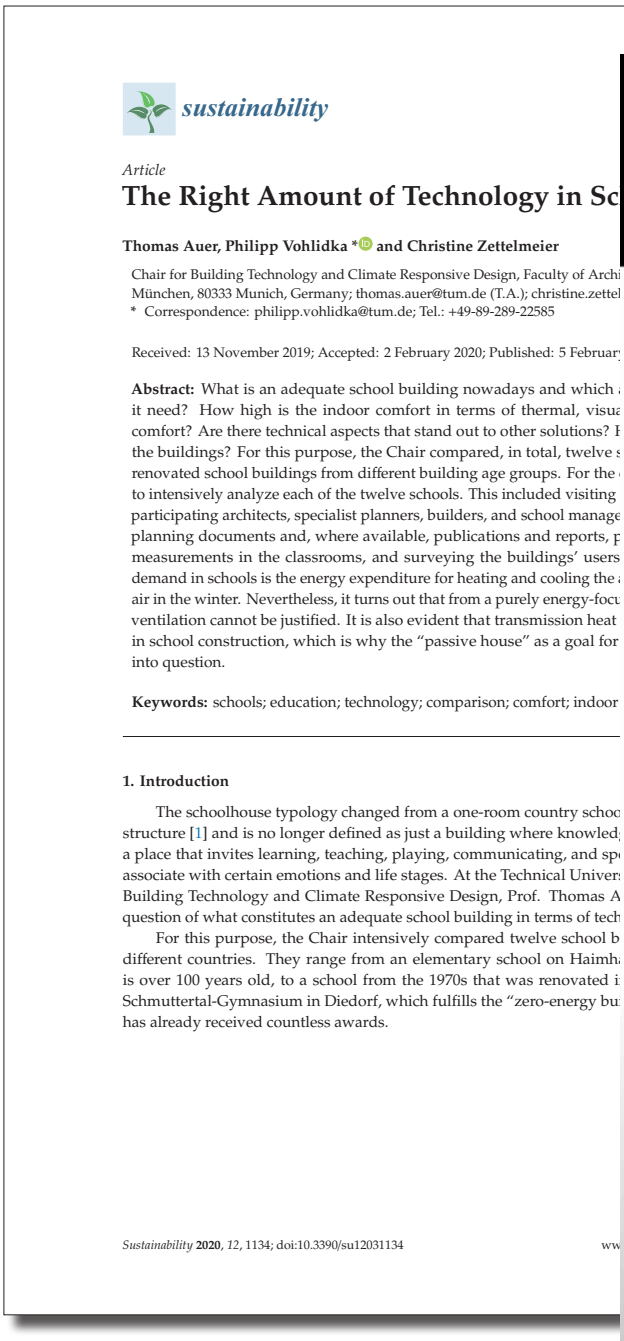
30
Authors
Collective Site Model II / 1:333

At the far end, a concrete-framed hall is repurposed as a canteen, serving both pupils and the wider community. The building engages each of its edges - including Krugerstraat, where a former logistics hall becomes a new neighborhood center. This addition opens to the street and shares a garden with the school, creating another spatial

sequence that moves from street to center, into the school, and out again—folding climate and use into one continuous experience.

These spaces are not just adjacent - they are connected. Boundaries remain soft. Programs spill over. A school event crosses into the hall. School canteen stay open in the evening. Pupils stay after hours. Makers arrive early. A teacher passes a skater. The layout supports these overlaps with intention, allowing differences to coexist rather than divide.

31
Authors
Collective Site Model II / 1:333



sustainability

Article

The Right Amount of Technology in Sc

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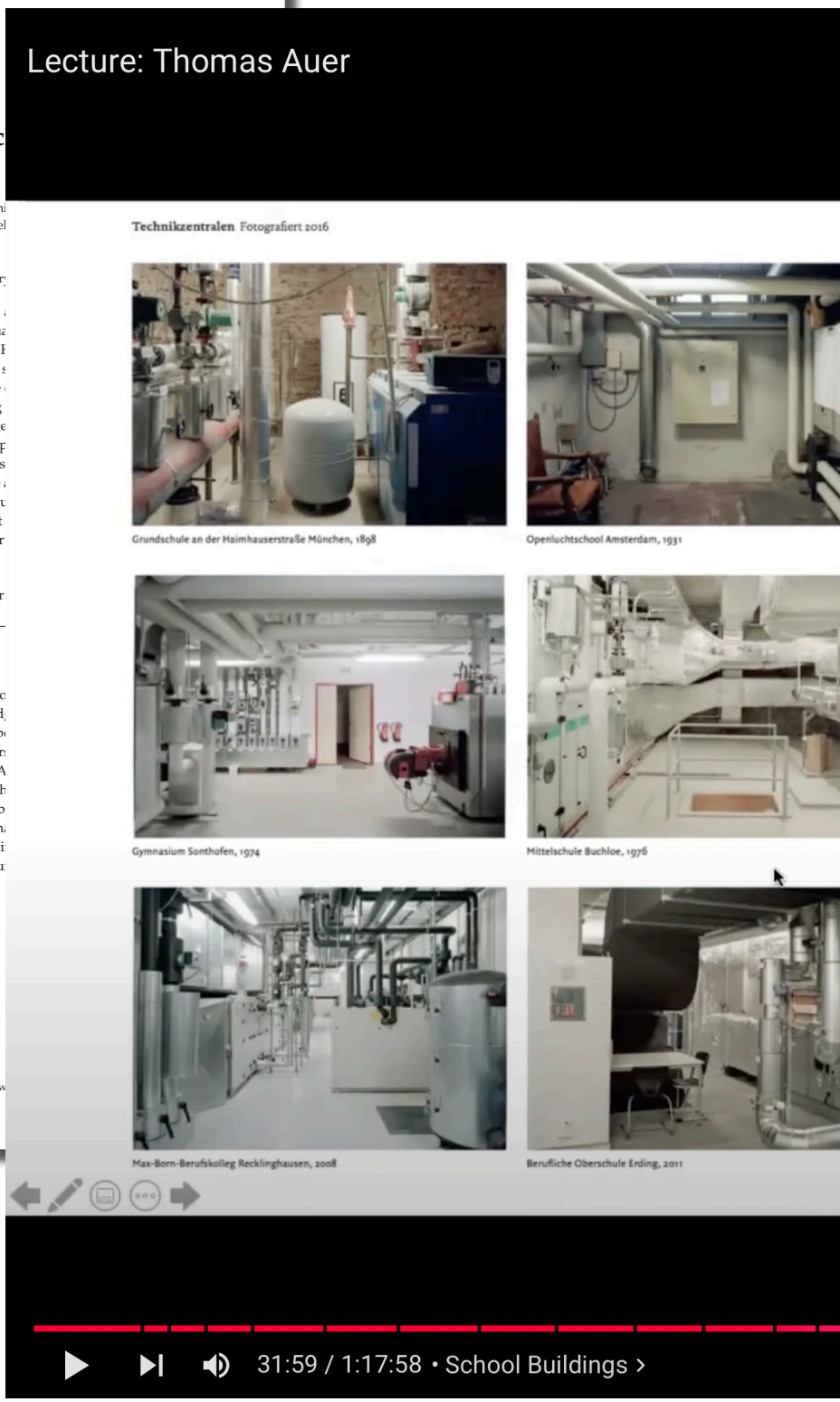
Abstract: What is an adequate school building nowadays and which
it need? How high is the indoor comfort in terms of thermal, visu
comfort? Are there technical aspects that stand out to other solutions? H
the buildings? For this purpose, the Chair compared, in total, twelve
renovated school buildings from different building age groups. For the
to intensively analyze each of the twelve schools. This included visiting
participating architects, specialist planners, builders, and school manage
planning documents and, where available, publications and reports, p
measurements in the classrooms, and surveying the buildings' users
demand in schools is the energy expenditure for heating and cooling the
air in the winter. Nevertheless, it turns out that from a purely energy-focu
ventilation cannot be justified. It is also evident that transmission heat
in school construction, which is why the "passive house" as a goal for
into question.

Keywords: schools; education; technology; comparison; comfort; indoor

1. Introduction

The schoolhouse typology changed from a one-room country schoo
structure [1] and is no longer defined as just a building where knowled
a place that invites learning, teaching, playing, communicating, and sp
associate with certain emotions and life stages. At the Technical Univer
Building Technology and Climate Responsive Design, Prof. Thomas A
question of what constitutes an adequate school building in terms of tech

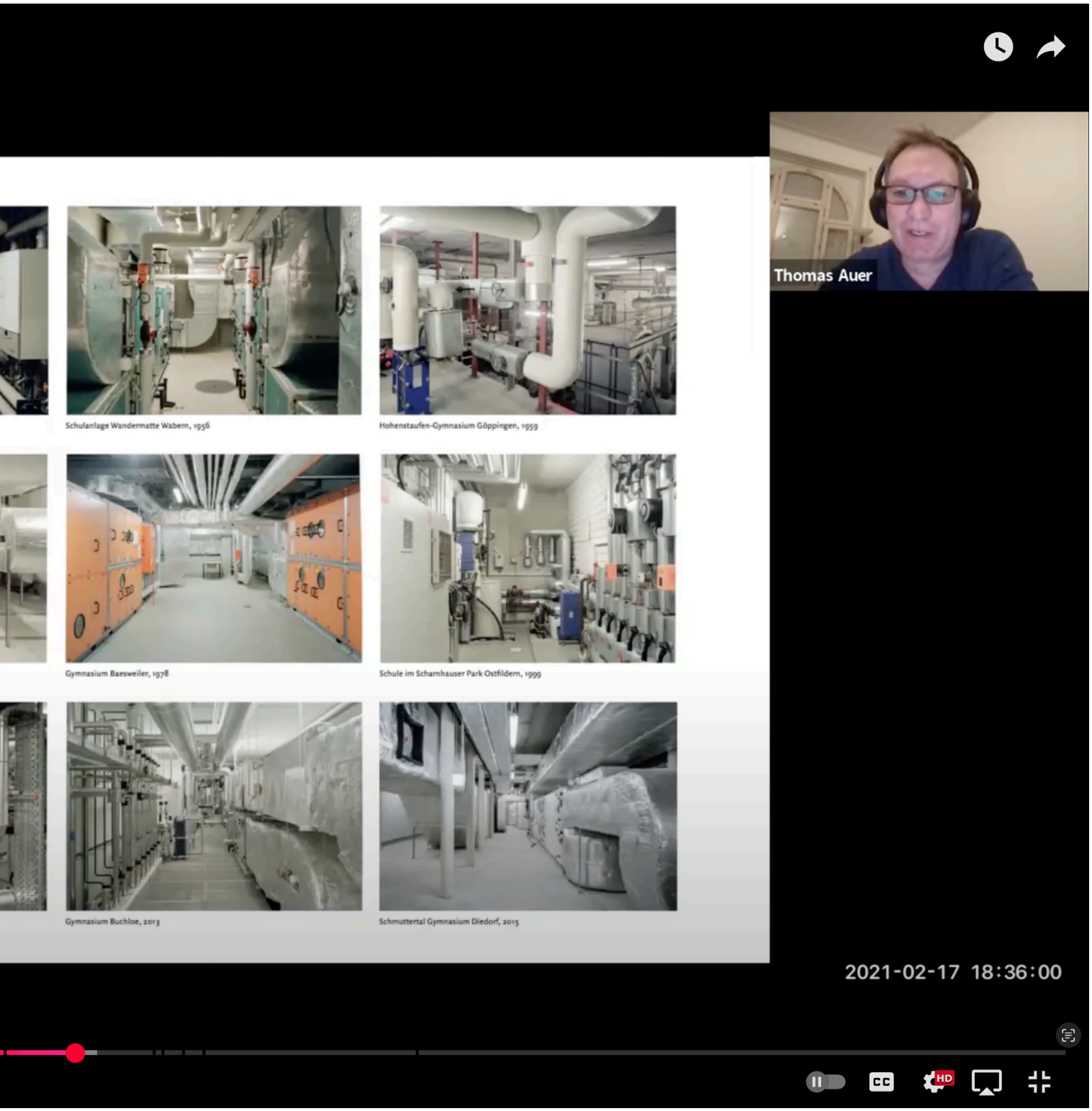
For this purpose, the Chair intensively compared twelve school b
different countries. They range from an elementary school on Haimh
is over 100 years old, to a school from the 1970s that was renovated i
Schmuttertal-Gymnasium in Diedorf, which fulfills the "zero-energy bu
has already received countless awards.



"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."

Comfort cannot be outsourced to machines. Technology, in itself, does not guarantee better buildings – only more complex ones.

A school should not be a sealed container of perfect air and artificial light, but a place where pupils and teachers



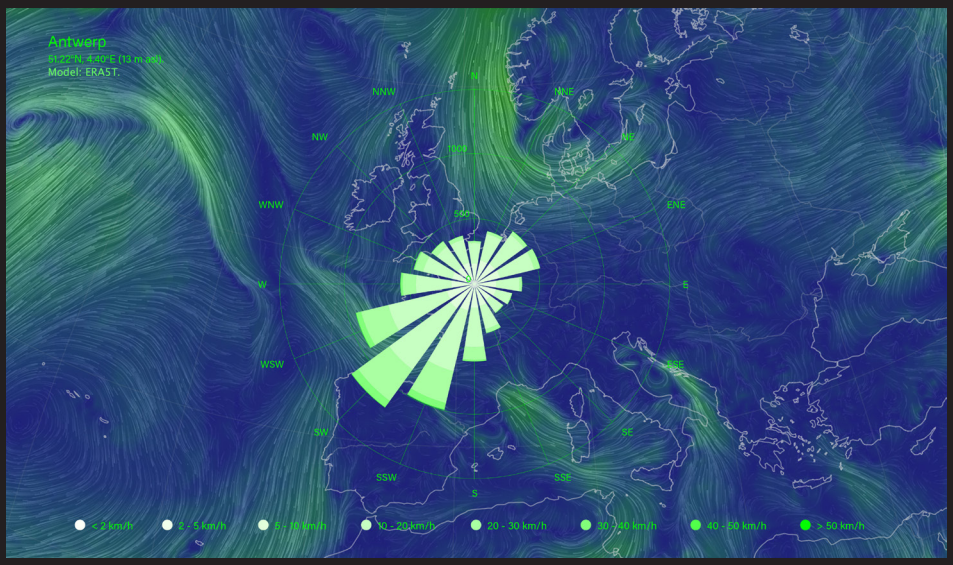
feel the seasons, adjust a window, open a door, choose a corner. The goal is not control, but participation – an environment that responds, but also allows response.

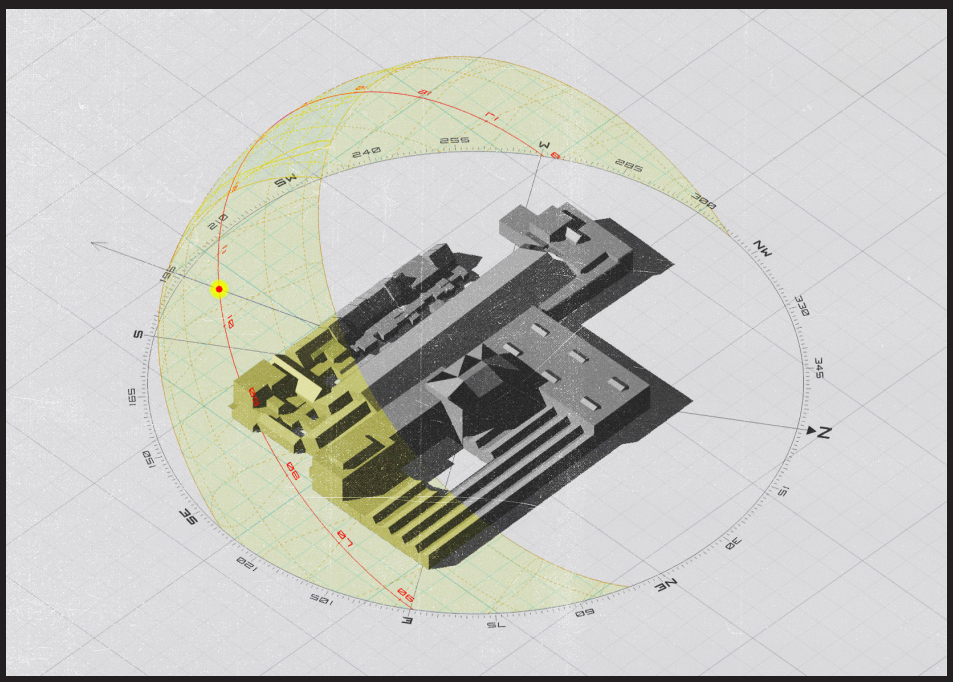
This is the logic already present at Blikfabriek, where people adapt to the weather and make do with what the day allows. The school joins that pattern - not just in structure, but in spirit. In these small acts, comfort becomes a relationship - not a fixed condition, but an ongoing process.

The climate of Hoboken plays an active role in shaping the design. A maritime influence brings mild winters, temperate summers, and prevailing southwest winds.

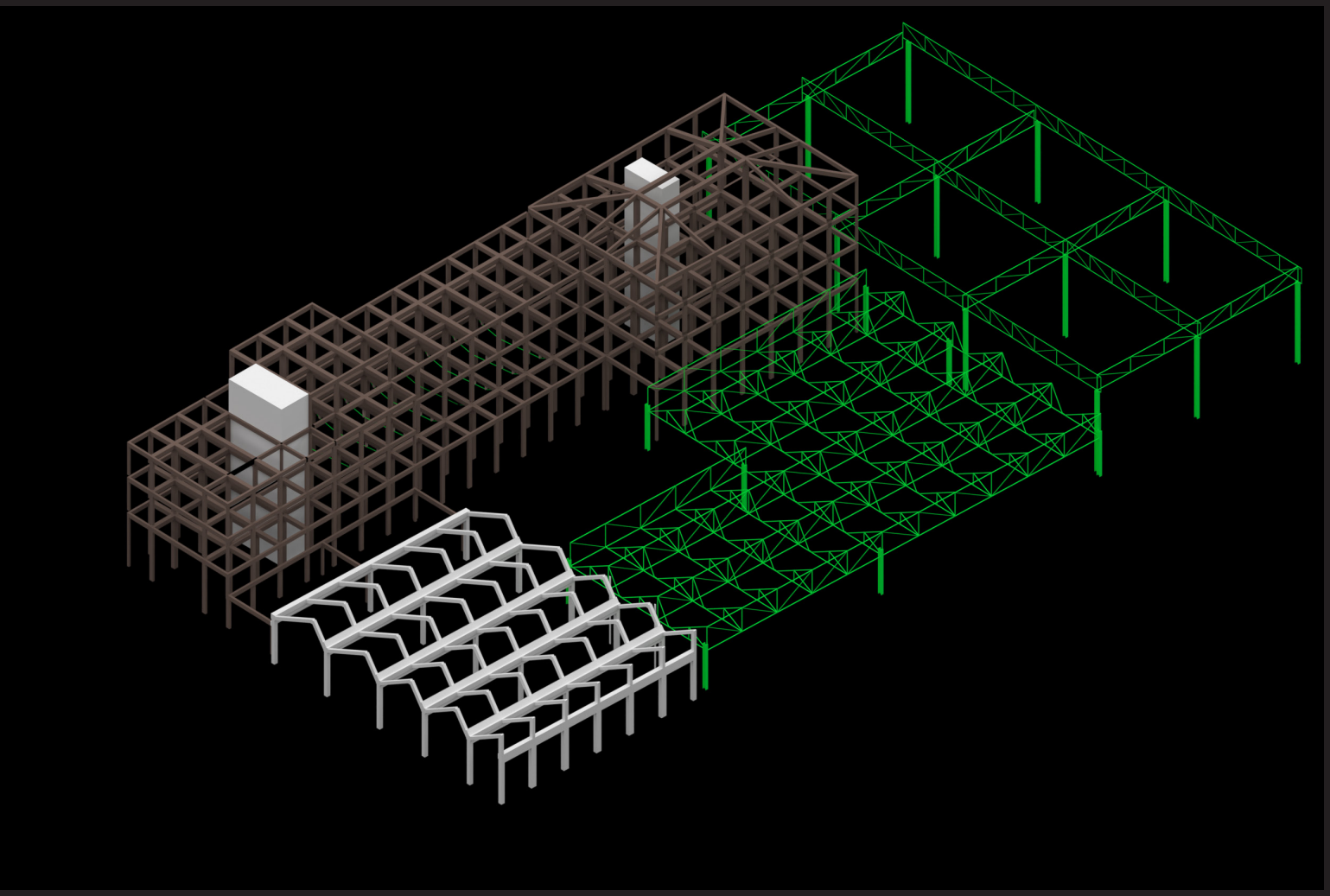
These conditions are not fought – they are used. A winter garden buffers the southwest façade, capturing sun and filtering air in colder months, opening wide for cross-ventilation in summer. On the opposite side, a tall atrium acts as a chimney. Together, they establish a passive flow of fresh air.

Concrete slabs absorb heat by day and release it at night. A ground-source heat pump supports low-temperature radiators. Mechanical ventilation remains secondary - there when needed, otherwise silent.





34
Authors
Collective Site Model II / 1:333



The structural system complements the environmental approach while offering spatial clarity. The new addition uses a hybrid frame: vertical spruce timber columns and mostly exposed prefabricated concrete slabs.

The slabs provide thermal mass and allow generous spans while contributing to fire safety. Their exposure supports passive climate control through night-flush ventilation. The timber columns, arranged in a clear rhythm, are warm to the touch at pupil height and provide scale and tactility.

This combination of materials echoes the site's legacy: where past industrial halls used steel or concrete, the new frame reflects today's values and focus on ecology. The regular structural grid aligns with facades, terraces, and classrooms, giving order to the plan.

Here, structure is not background – it is architecture. It shapes how the building feels and functions. It is both support and expression: visible, purposeful, and lasting.

35
Author
Structure Diagram

Authors
Collective Site Model II / 1353

Gradients of Comfort explores how architecture can challenge traditional concepts of comfort – an exploration which is urgently needed in the face of climate crisis.It is an attempt to offer not a single solution, but a set of possibilities. It proposes that comfort does not need to be uniform to be generous.

Rather than sealing itself off from climate, the design learns to move with it. It responds to environmental shifts, and offers autonomy to its users - who can define their own comfort zones. A window opened. A terrace stepped onto. A quiet place discovered. These simple acts become part of how the building works.

What is built here is not a sealed envelope but a framework - an open ground between structures, people, and weather. Old and new stand side by side, not to contrast, but to coexist. Spaces are layered, not divided. Light and air pass through. Memory and invention stand together.

Gradients of Comfort aims for a resilient and engaged relationship with our built environment. Our buildings have to empower us to adapt, rather than offer a passive, mechanized idea of comfort. Not by isolating us, but by making us aware, connected, and alive to our surroundings.

At the beginning of this catalogue, I quoted:
A young man will never, in autumn, say that summer was the only season. A young man never gets old.

This, I believe, speaks to the spirit of the place. The industrial halls, reactivated, find new life. The school, newly built, feels rooted. And together, they form a place that remains open - open to change, open to use, open to joy.

This is a place that doesn't end.
It invites discovery, invites movement, invites growing up and growing older without ever growing closed.
Not just to protect - but to connect.
Not just to last - but to stay alive.

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Urban Architecture Graduation Studio
Professor: Paul Vermeulen
Mentors: Sam Stalker (Main), Eireen Schreurs, Jos Lafeber

Collective Research - Material Garden of Gift and Waste
Collaboration: Carolina Bongiorno, Julia Kudła, Fabian Wachter, and Sacha Oberski

Collective Master Plan - From street to the city
Collaboration: Barten Verschoor Sacha Oberski