

SELECTED PROJECTS

Architecture Portfolio by Jan Bauer

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BINZ+

2024
Diploma
Chair of Jan de Vylder at ETHZ



The project explores the Zürich Binz, an industrial zone protected from the city's housing market insanity. How can we lift this protection without compromising its quality?

Binz, Zürcher Stadtteil K4

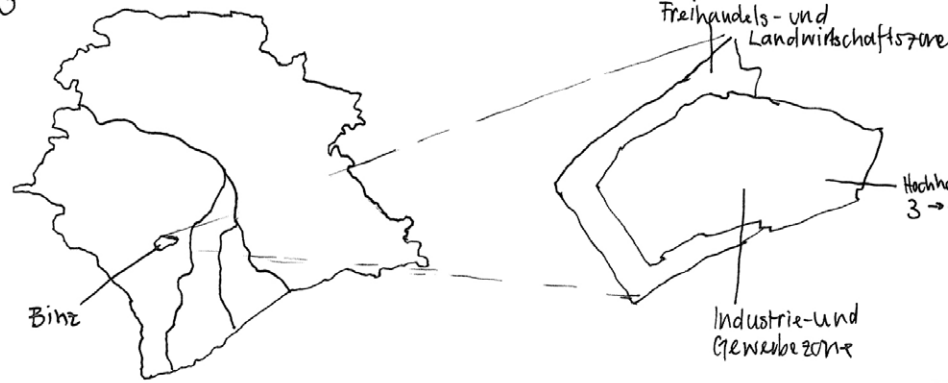


The architecture inserts itself where industrial and residential regulatory zones meet.

Portal to industrial pocket

GESETZESHEBEL - HOW TO LIVE IN BINZ

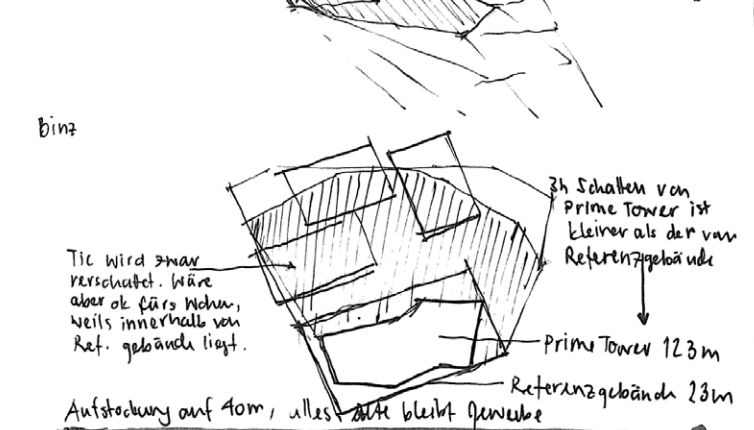
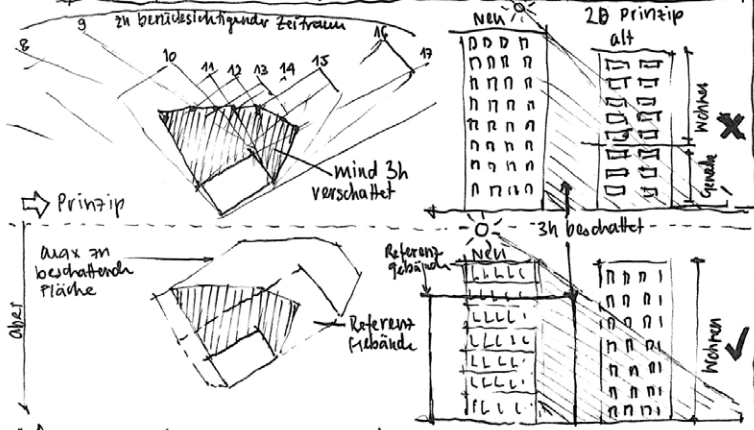
BZO



	IG III	W3 (Bestimmung der SP im 1980)	W6	Z5	Z7
Vollgeschoss max	7	3	6	5	7
anrechenbares DG	0	1	1	1	1
Gebäuhöhe max	25m	9.5m	18.5m	19m	25m
Grundflächenabstand	3.5m (zwischen 12 und 15m)	5m	5m	3.5m	3.5m
Ausnutzungsziffer	150% (für Handel und Dienstl.)	90%	250%	200%	260%
Baumkennziffer	12m ² /m ²				
Freiflächenziffer	mind 15%				
Nutzung	In allen IG sind stark störende Nutzungen zulässig. Spital- und Krankenhausbau sowie Hotel- und andere Wohnähnliche Nutzungen sind mit Ausnahme von Wohnungen für Standort-gebundene Betriebsangehörige in allen IG nicht zulässig.	Wohnanteil mind. 66%, wenn weniger auch mässig störende Betriebe zulässig. Sonst nur nicht störendes Gewerbe zulässig.	Wohnanteil mind. 83%, wenn weniger auch mässig störende Betriebe zulässig. Sonst nur nicht störendes Gewerbe zulässig.	Wohn., Handel, Dienstl., Verwaltungen - mässig störende Betriebe. Wohnen nicht in EG. Wohnanteil mind 50%.	Wohn., Handel, Dienstl., Verwaltungen - mässig störende Betriebe. Wohnen nicht in EG. Wohnanteil 50%.

3h Schatten Voraussetzung: Binz wird umgeplant

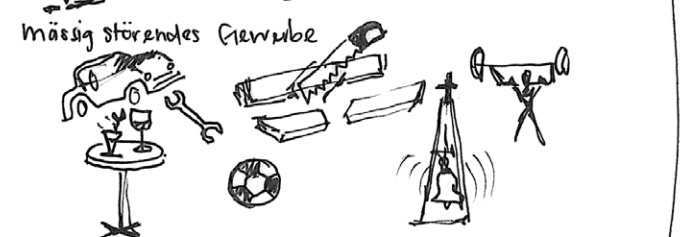
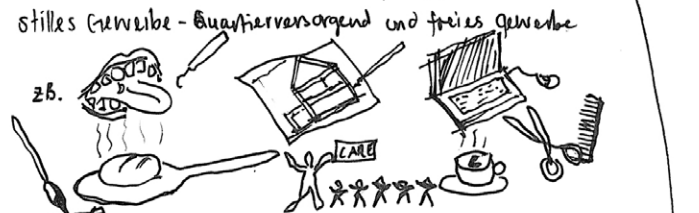
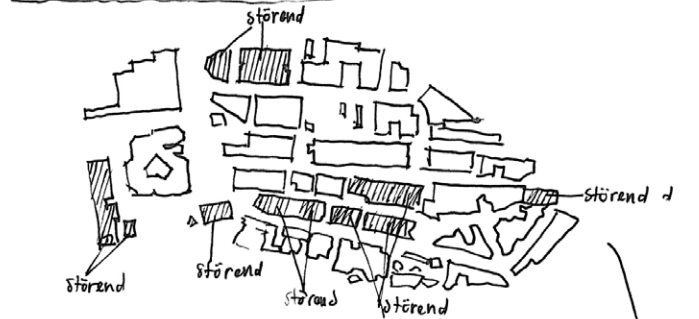
§ 284 Abs. 1: Die Nachbarschaft darf nicht wesentlich beeinträchtigt werden, insbesondere nicht durch Schattenwurf in Wohnzonen oder gegenüber bewohnten Gebäuden.
§ 30 Abs. 1: Allen wesentlichen Beeinträchtigung durch Schattenwurf im Sinne von § 284 Abs. 1 gilt:
a. bei überbauten Grundstücken: die an den wärmeren Wintertagen länger als drei Stunden dauernde Beschattung der bewohnten oder in Wohnzonen liegenden Nachbargebäude, in der Regel an ihren Fusspunkt gemessen.



Autostockung auf 40m, alles alte bleibt Gewerbe
Binz neu:
8799 Wohnungen | 8261 Bewohner:innen |
AZ 5.4 davon Wohnen 2.34 | Leerwohnungsziffer Zürich 1.33

Stilles Gewerbe Voraussetzung: Binz wird umgeplant

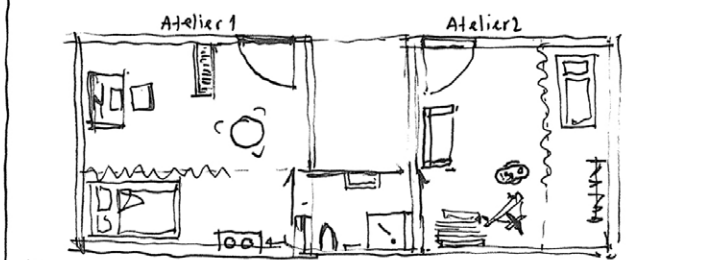
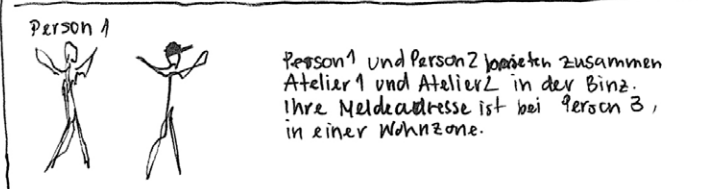
V. Wohnzonen § 52.
3 Mässig störendes Betriebe sind gestattet, wobei Bau- und Zonenordnung sie zulässt. starkstörende und solche, die unverhältnismässigen Verkehr auslösen, sind unzulässig.



Binz neu:
829 Wohnungen | 1808 Bewohner:innen |
AZ 2.7 davon Wohnen 0.51 | Leerwohnungsziffer Zürich 0.39

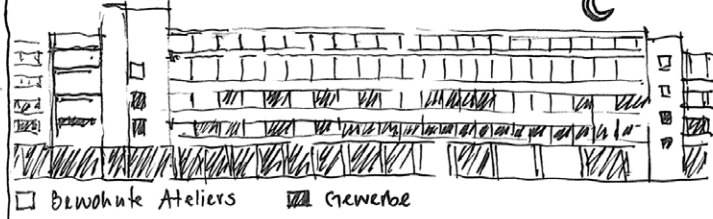
Atelierwohnungen ohne Umzonung

Wenn auch nicht unbedingt zu empfehlen, ist es grundsätzlich nicht verboten ein Teilzeitarbeitszimmer, beispielsweise in einem Atelier, einzurichten. Als Faustregel gilt drei Nächte pro Woche sind zulässig, ab vier wird es kritisch. Ein eigentliches Wohnen im Gewerbegebiet bleibt aber illegal!



	Montag	Dienstag	Mittwoch	Donnerstag	Freitag	Samstag	Sonntag
Atelier 1							
Atelier 2							

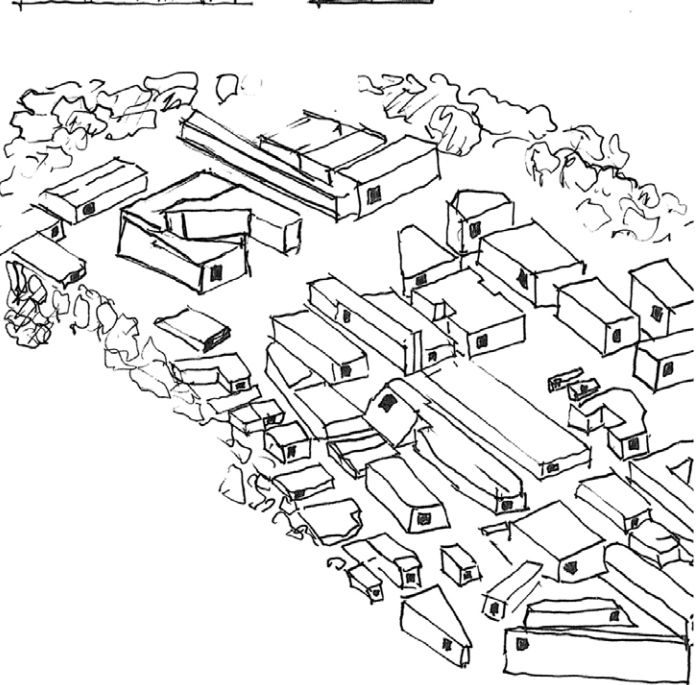
IG III = 150% für Handel und Gewerbe
aktuelle AZ Binz total = 270%
→ 55.5% von Binz könnte Wohnen sein



Binz neu:
2433 Wohnungen | 5305 Bewohner:innen |
AZ 2.7 davon Wohnen 1.5 | Leerwohnungsziffer Zürich 0.88

Hauswärt:innenwohnungen

§ 562
4 Wohnungen für standortgebundene Betriebsangehörige sind für vorübergehend angestellte Personen kann die Bau- und Zonenordnung provisorische Gemeinschaftsunterkünfte zulassen.



Wohnung in der Binz
61 Häuser in der Binz → 61 x 4 = 244 Binz-Bewo.
Nuclear Family

Binz neu:
61 Wohnungen | 133 Bewohner:innen |
AZ 2.7 davon Wohnen 0.03 | Leerwohnungsziffer Zürich 0.08



Border impressions collage

A monofunctional office building abruptly walls up against the long-established residential neighborhood. The regulatory framework intended to negotiate precisely such zone transitions, doesn't prevent this massive 130m wall.

BZO Art. 19 Abs. 4:

Gegenüber Grundstücken in Wohn-, Quartiererhaltungs- und Kernzonen erhöht sich der Grundgrenzabstand um das Mass der Mehrhöhe, die die Gebäudehöhe von 12 m übersteigt, jedoch höchstens auf 16,5 m.

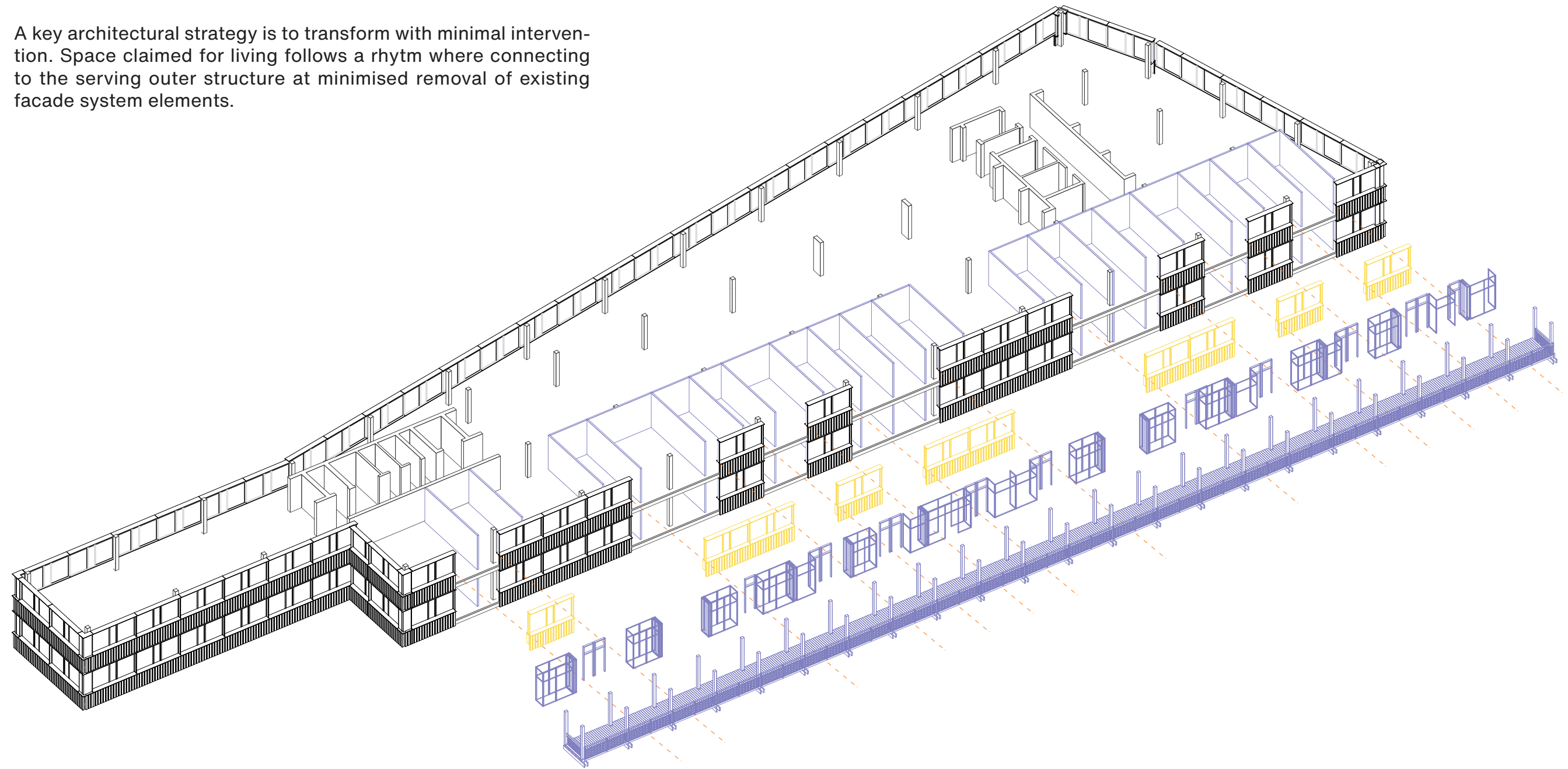


Border desire collage

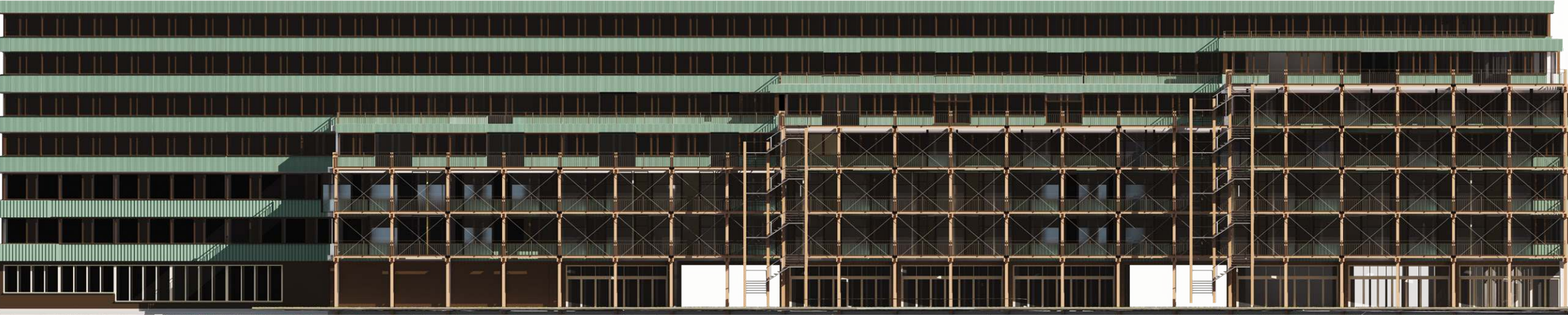
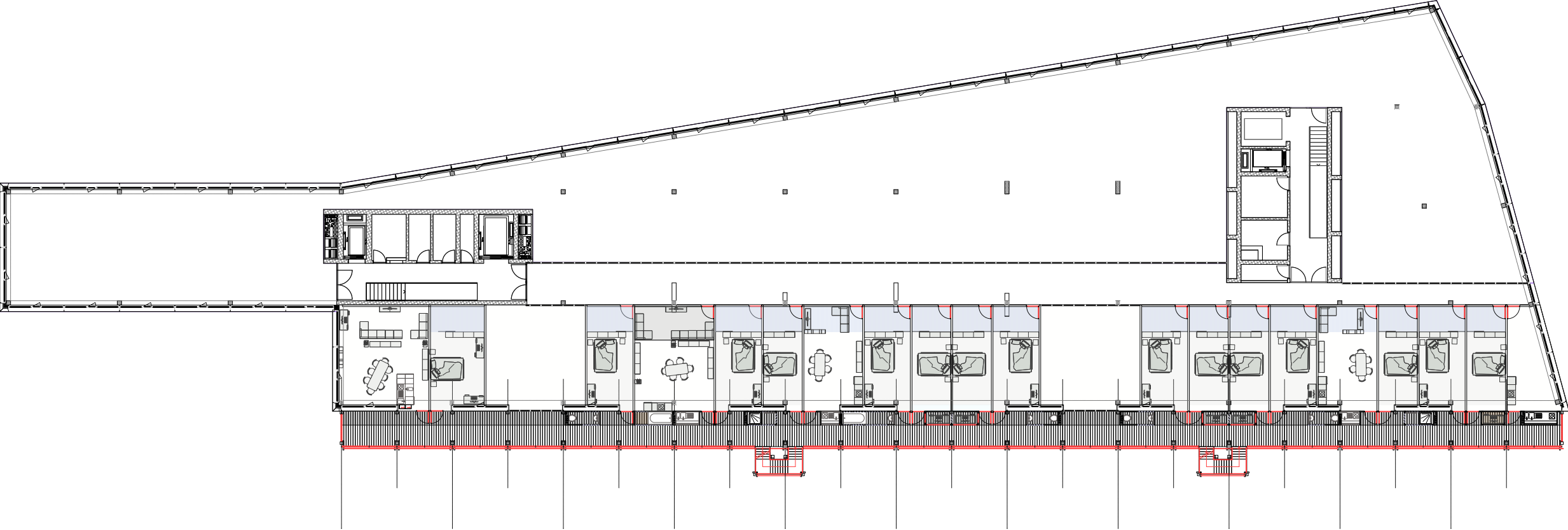
1. Qualitäten- nicht Zahlen definieren die Stadt.
2. Es darf gewohnt werden.
3. Bestand ist grundsätzlich geschützt
4. Bestehende Nutzung gilt als Bestand, Verschieben ist erlaubt
5. Zusätzliche Nutzung ist mehrheitlich Wohnen zur Kostenmiete
6. Es gibt Vibe-Corridors und Strassenschluchten
7. Das Erdgeschoss unterstützt die Nutzung
8. Zäune sind verboten
9. Aussenräume sind vielfältig und kleinkörnig
10. Wohnen hat Bezug zum Vibe-Corridor.
11. Stadtklimatischer Komfort ist gewährleistet

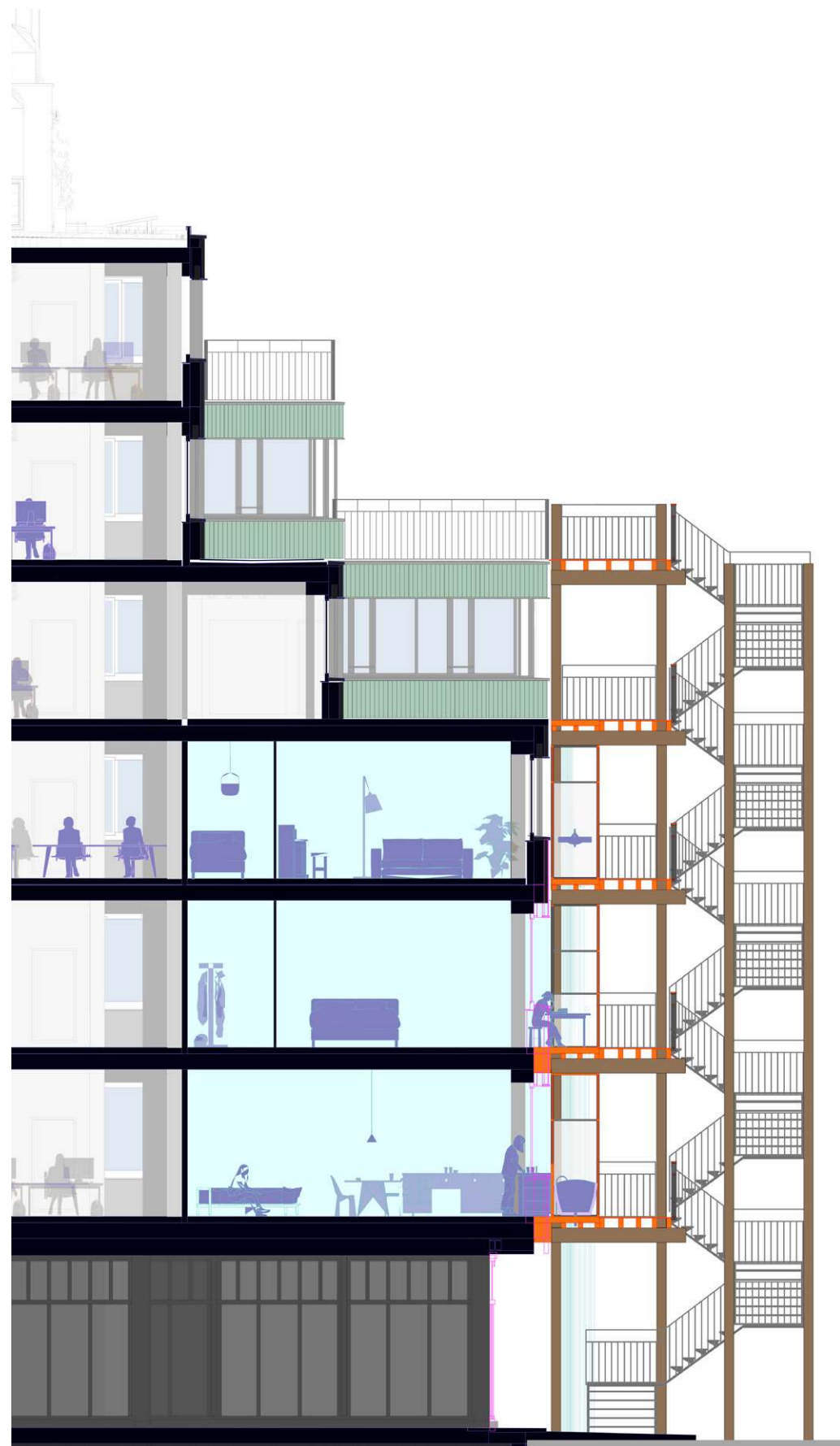
We concluded our group research by defining these rules and set out to test them in the different scenarios of our solo projects.

A key architectural strategy is to transform with minimal intervention. Space claimed for living follows a rhythm where connecting to the serving outer structure at minimised removal of existing facade system elements.

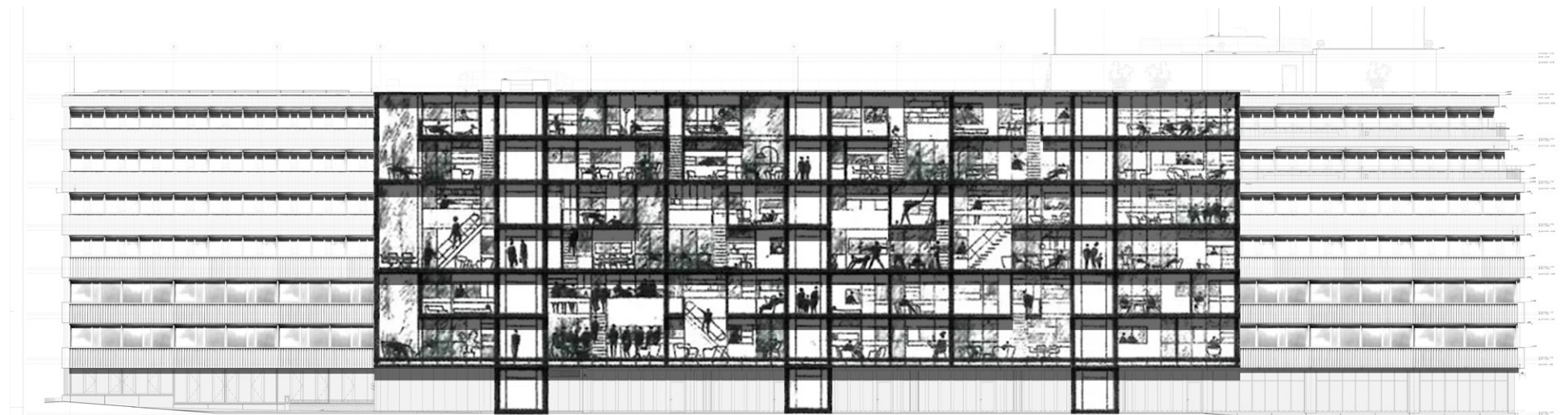


The added structure holds risershafts, wet-spaces and circulation.
This eliminates the need for drilling and other invasions of the existing substance.



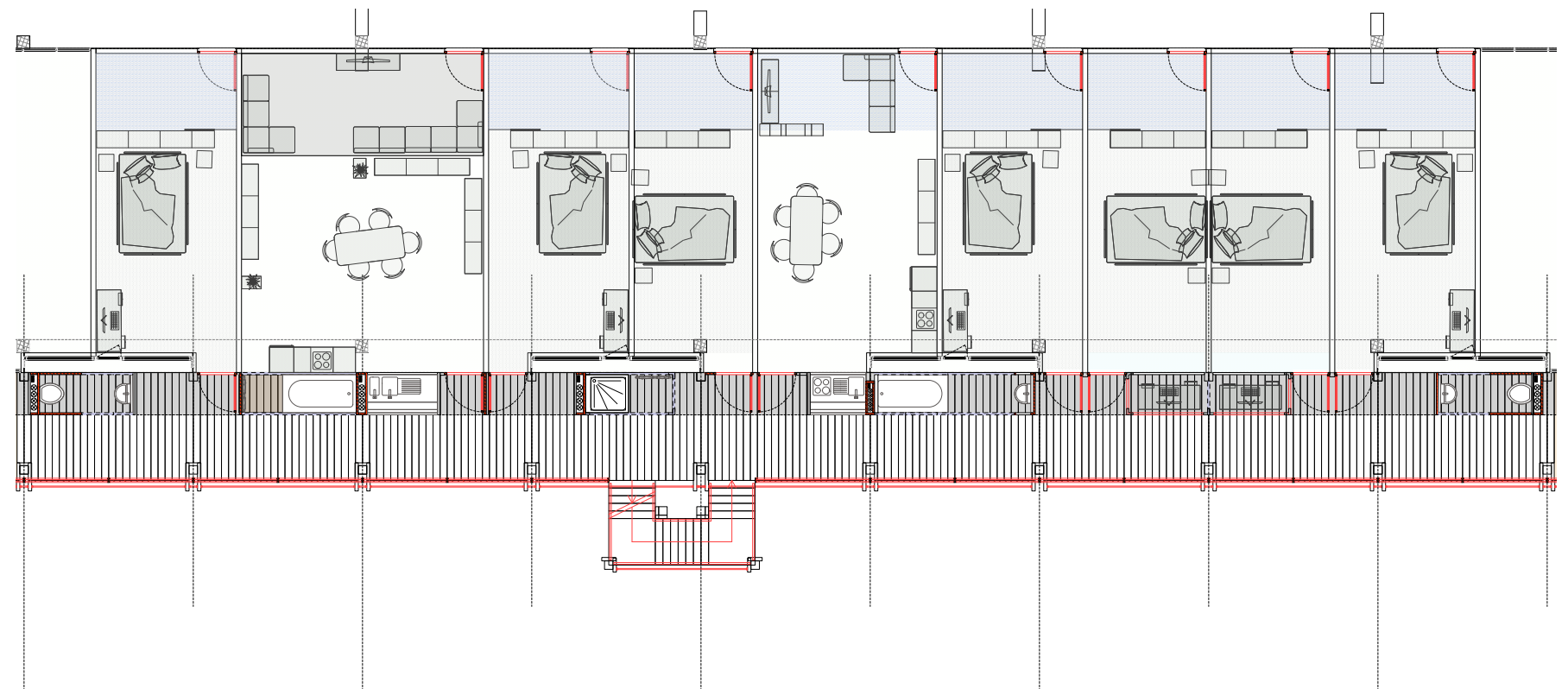


Cross section



The “Bande Actif” brings bathrooms and kitchens to the surface where they display the dynamics of domestic life in a layering play with the living rooms behind.

Common space and private rooms can be clustered to accommodate a multitude of household configurations.



Switchroom cluster layout

Bande Actif, collage



Lenticular Lensing



Lenticular lensing occurs when transparent mediae are formed from an array of small lens-shaped tubes. They diffuse contours along their direction reliably.



Mood render 1



FAMILIARITY ON KANZLEI

2022

Studio Adam Caruso
Assistant Tibor Bielicky

With Max Schubert



Kanzleiareal Zürich

Looking once again for new battlegrounds to fight the housing crisis, the stage is the Kanzleiareal.

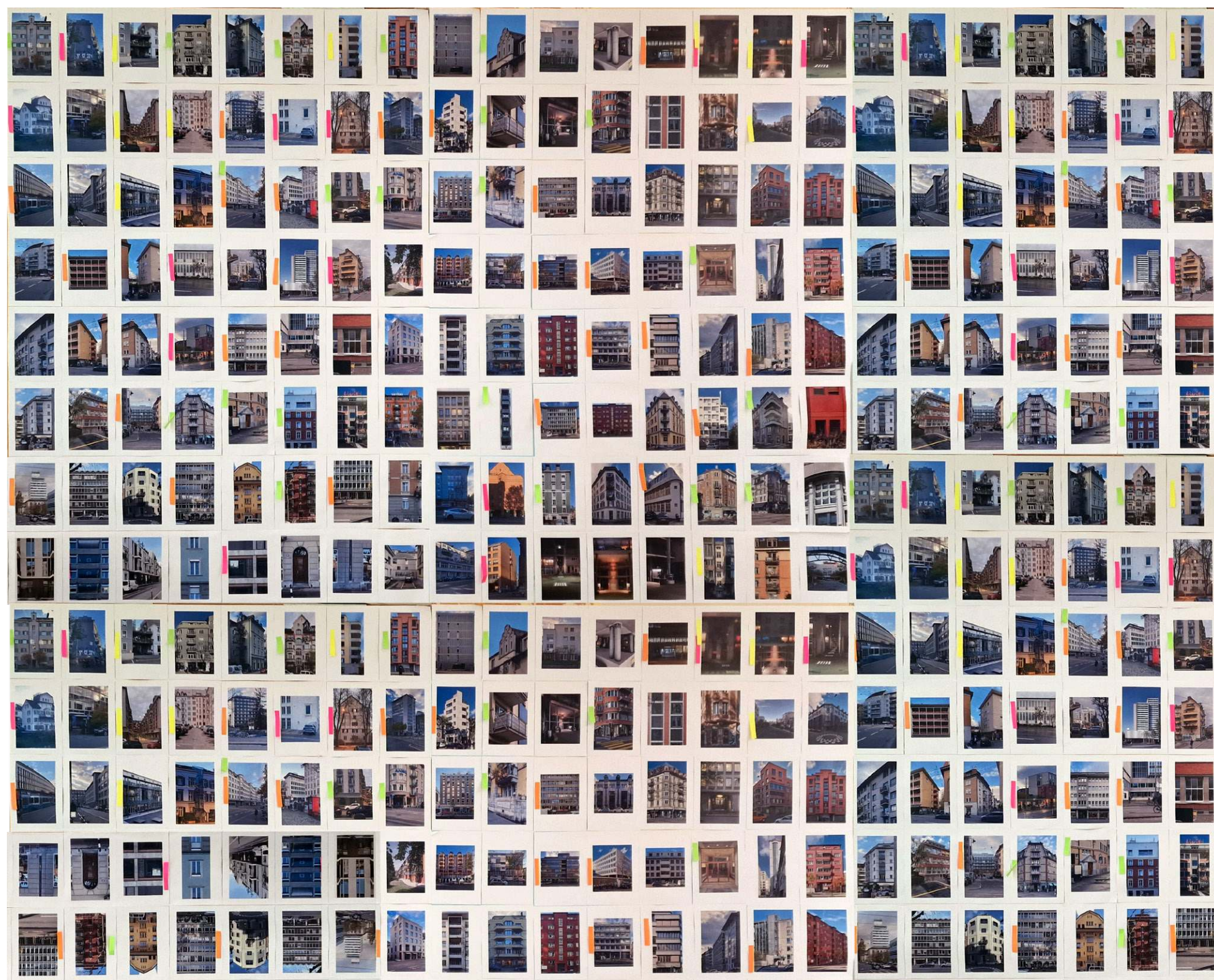
Next to cinema, club and school it frequently hosts political activism, non-institutional market and trades, pétanque and many more invisible appropriations.

The Non-Complete is a stance opposing the legitimacy of power structures, suspicious of stability, unity, and the established. It suggests constant change, with shifting, sometimes conflicting, translations to reality.

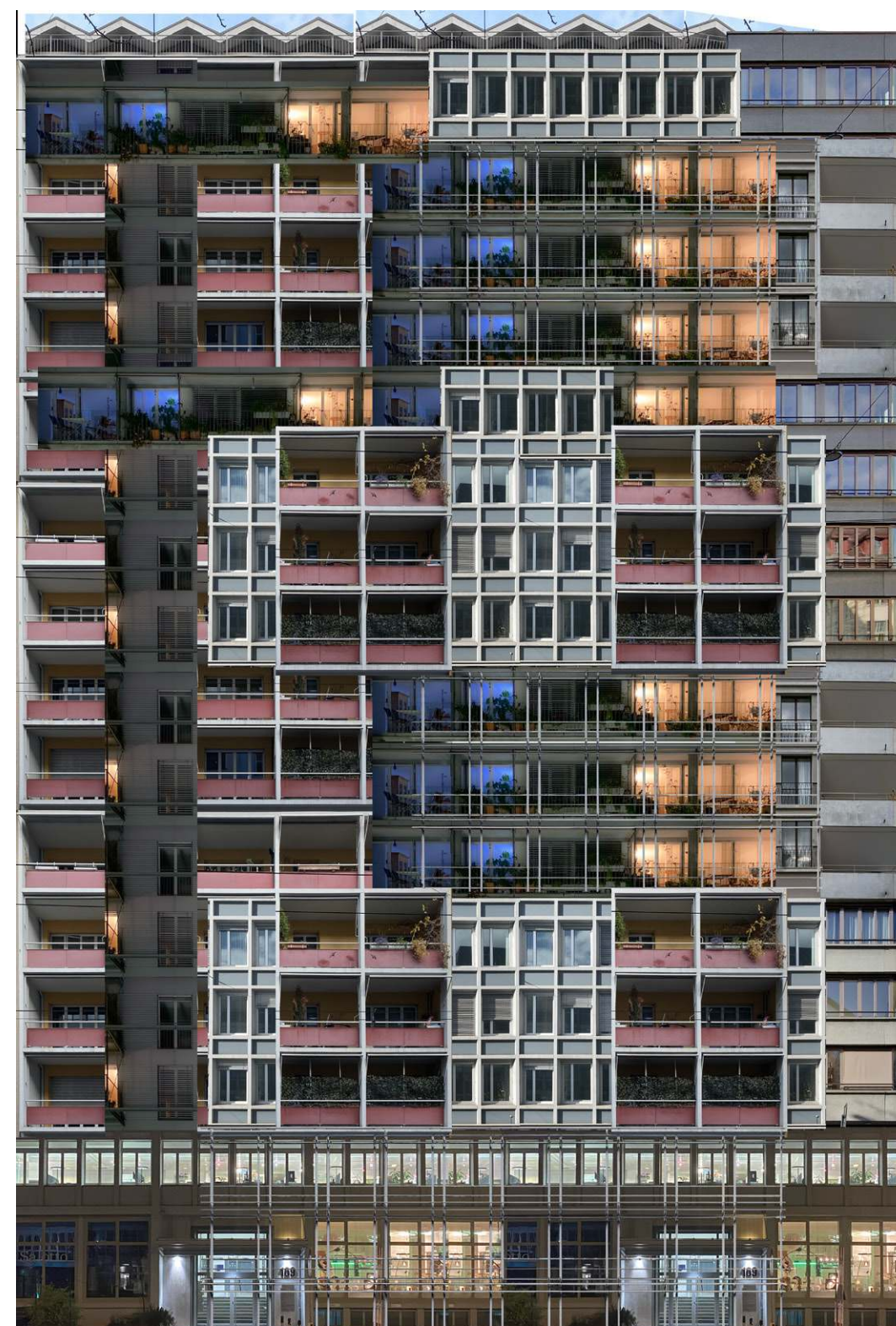
To build on the Kanzleiareal means to introduce a stranger.



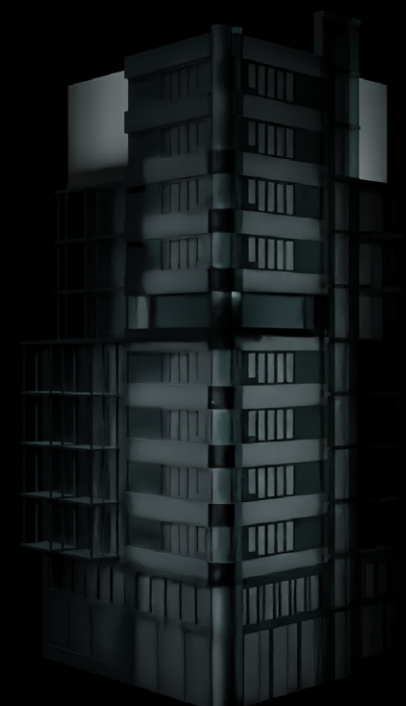
States of the non-complete



Facades of Zürich

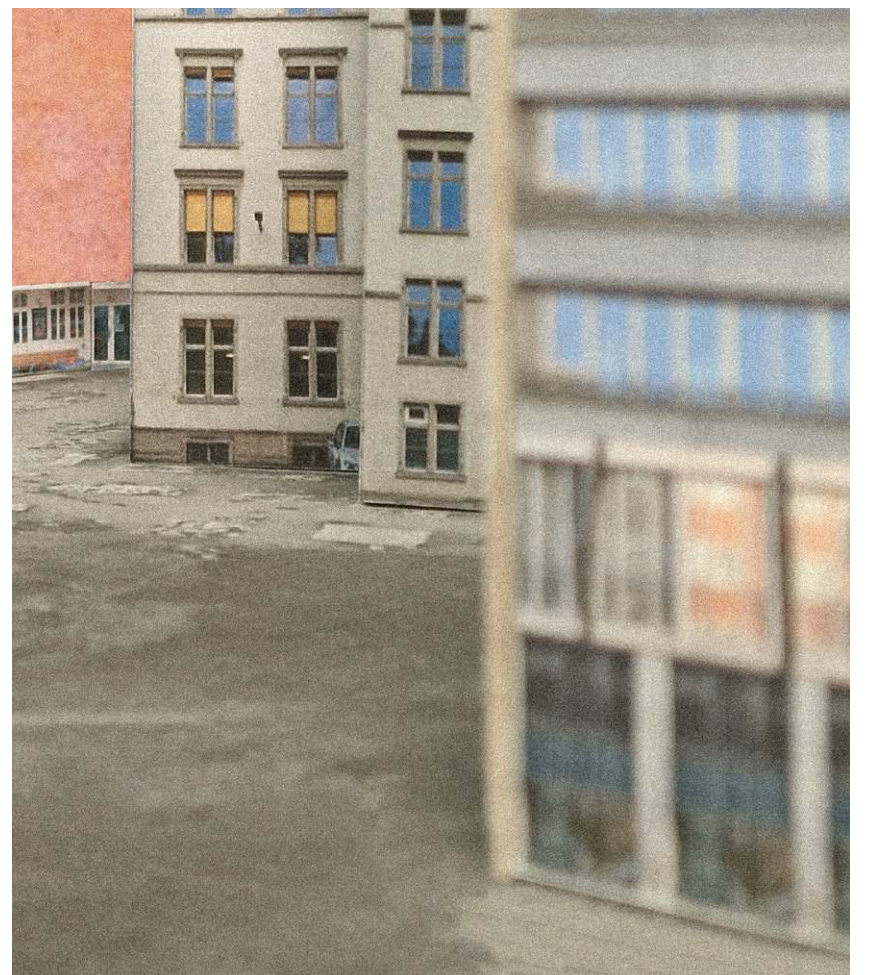
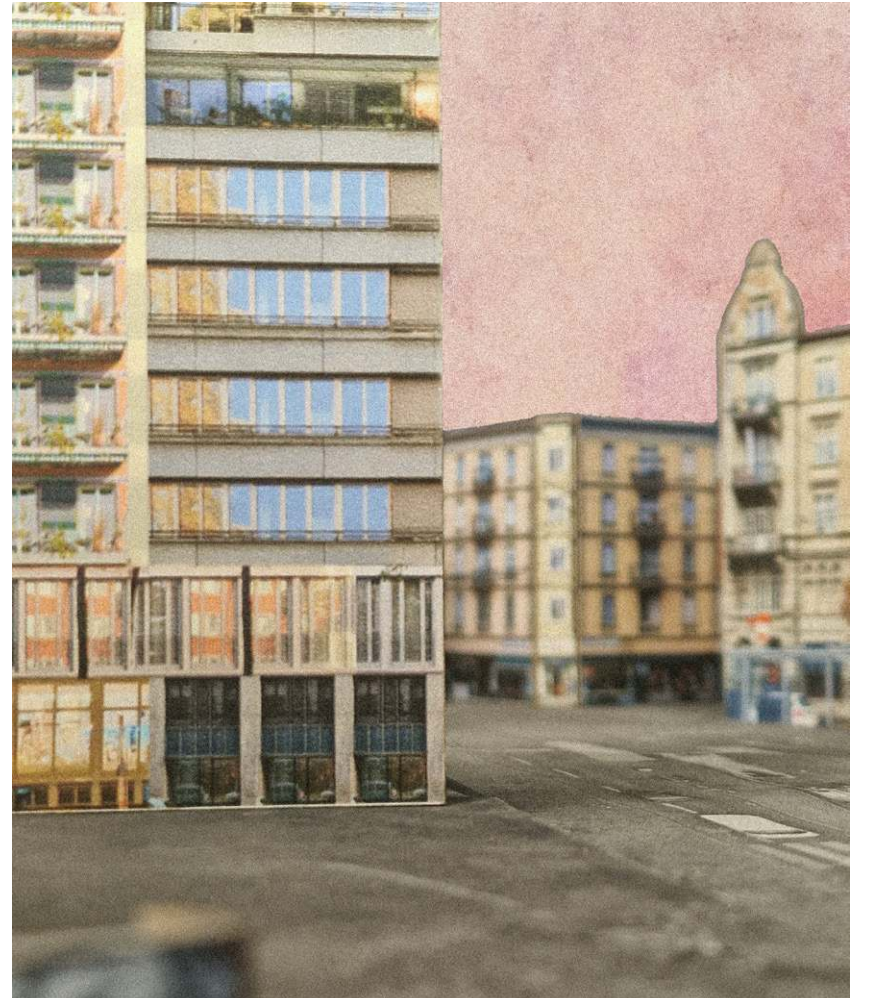
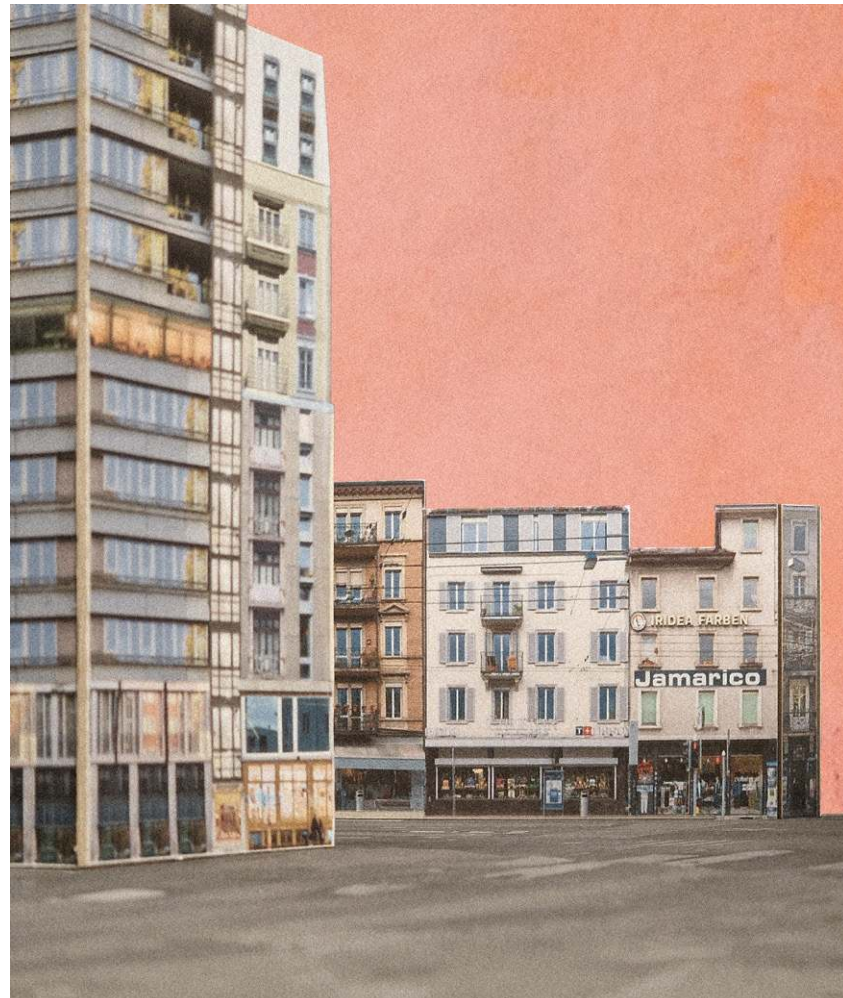
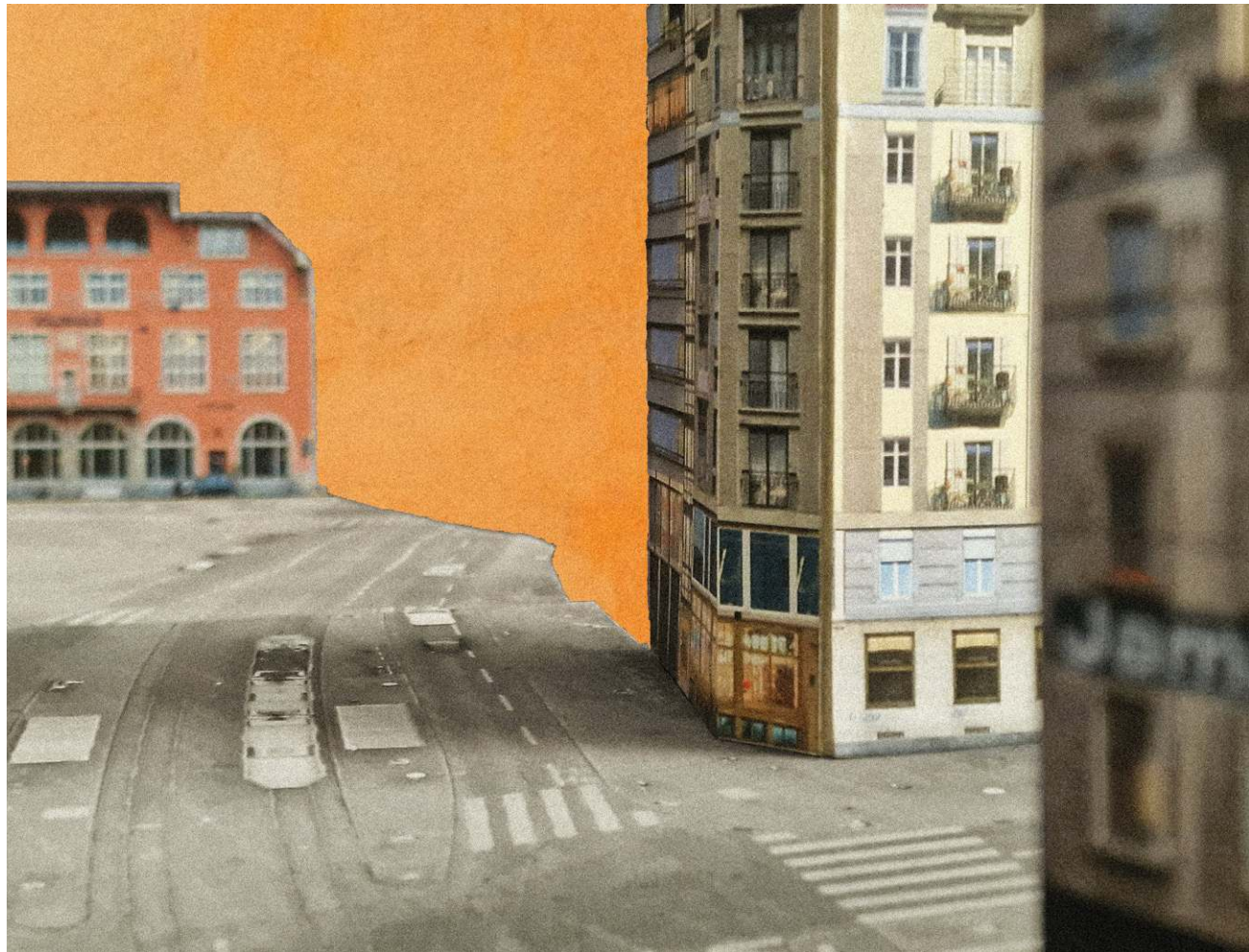


Rearrange

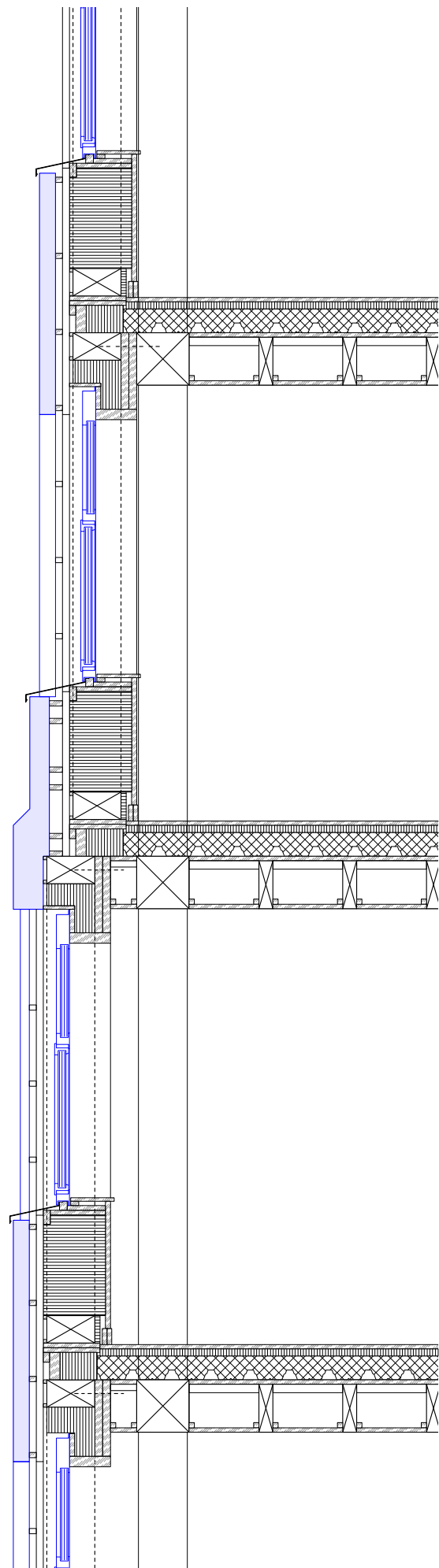


The faminiar stranger: For each side we read the atmosphere already present and contribute by deploying suitable elements and principles from our catalogue.

Impressed principles



Vis-a-vis



Construction section



Floor plans





INVISIBILITY EN VAGUE

2022

Studio Alexandre Theriot

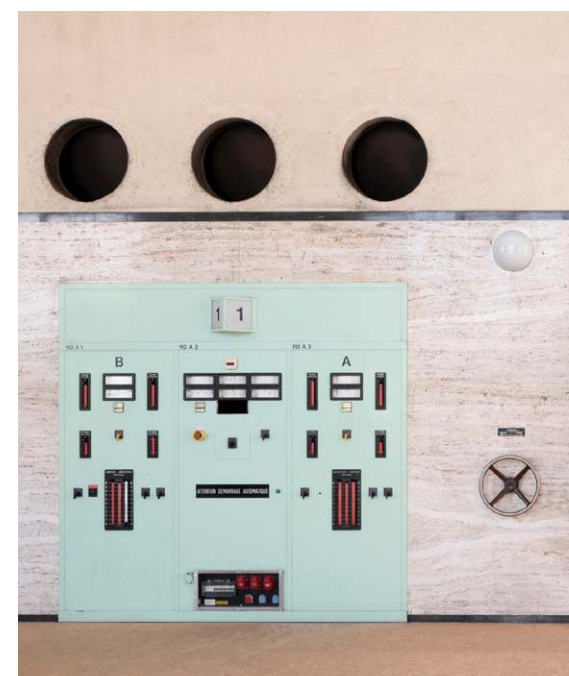
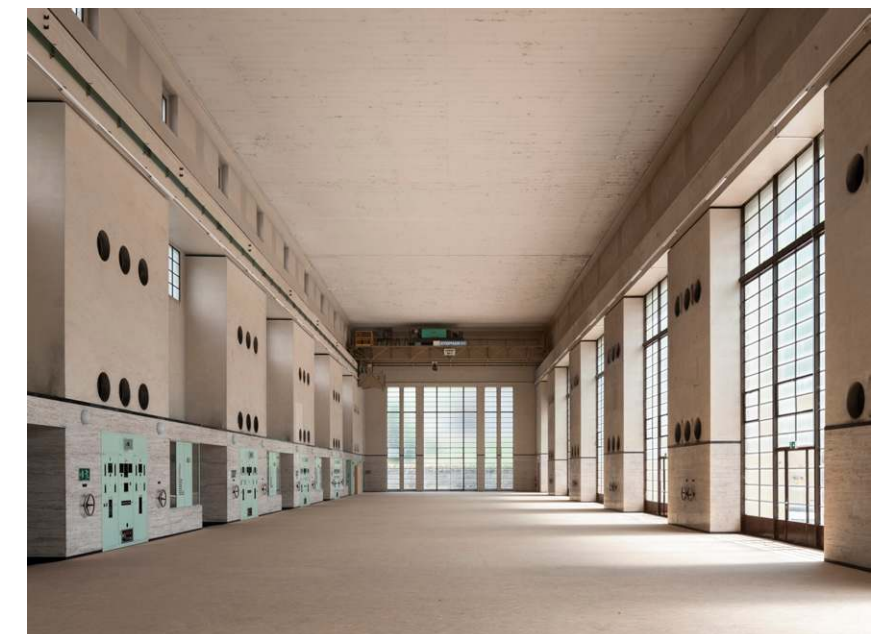
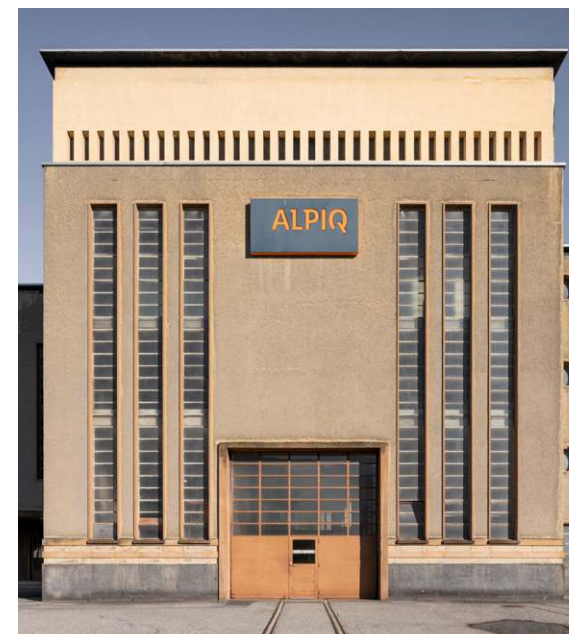
Assistants Adrien Comte, Philippe Buchs

Advised by Robert Presl, Giovanna di Loreto, Yannick Siri, Patric Van der Haegen and Moritz Hofstetter

With Max Schubert & Jonas Schafer

This project needed to satisfy three entirely unrelated contextural parameters: The Institute of Robotics and Intelligent Systems at ETH, a square kilometre plot in Sion, and a competition program for a cultural centre that had to be along second free of choice program.

We learnt to hide from robots, then to appreciate terrain vagues and finally how to hide a reactivated historical building from developers



Photographies of the contemporary state of the historic hydroelectric power plant, Sion



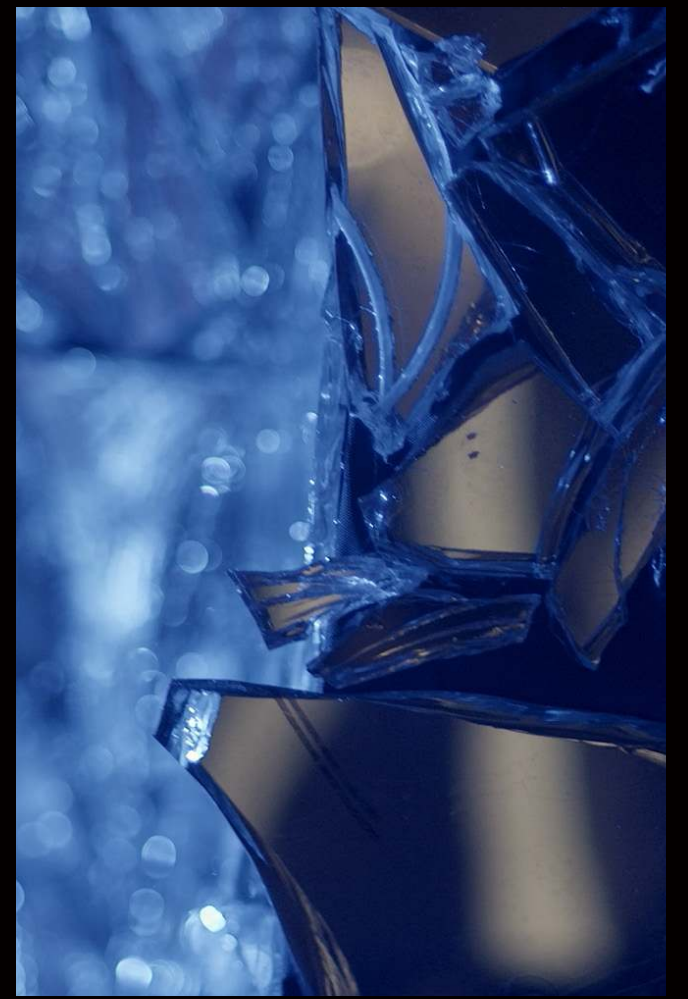
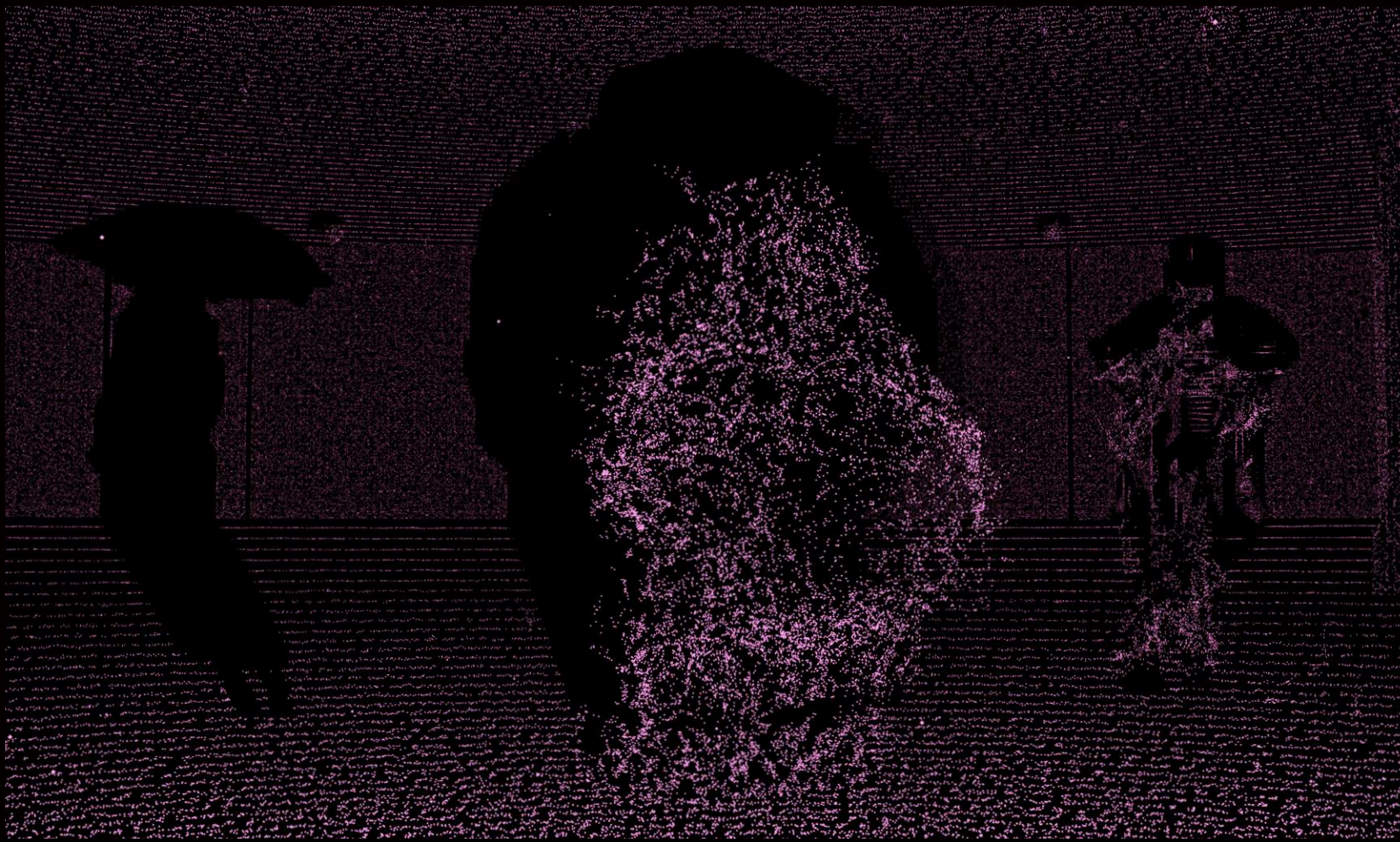
ROBOTS - MYTH

Looking at robots, we got interested in their spatial perception: Li-Dar. In order to teach ourselves how not to be seen by robots, we created fashion that hides from autonomous machines

Robotic perception: different objects are captured by a LiDAR



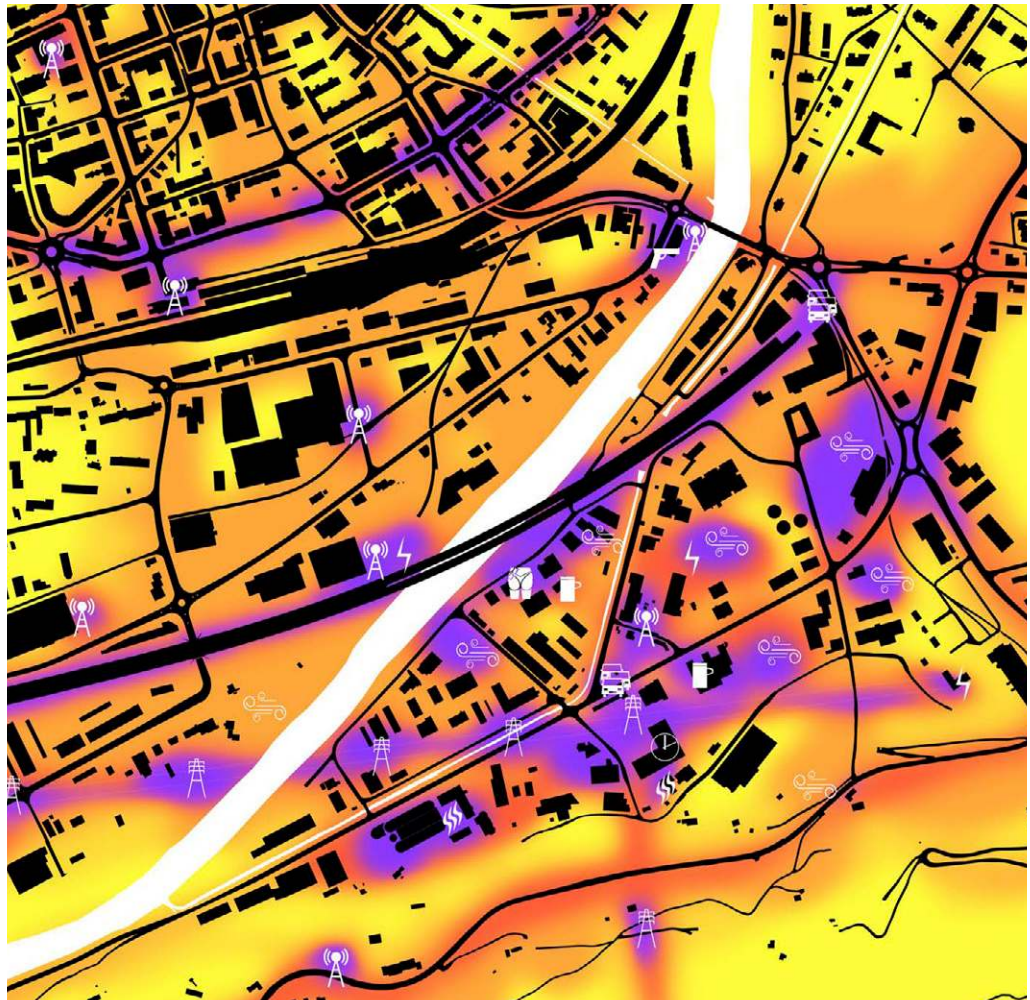
Pointcloud of a person wearing a sharded mirror poncho



Anti-LiDAR fashion: Vantablack, fog and mirrors



Chandoline site documentation

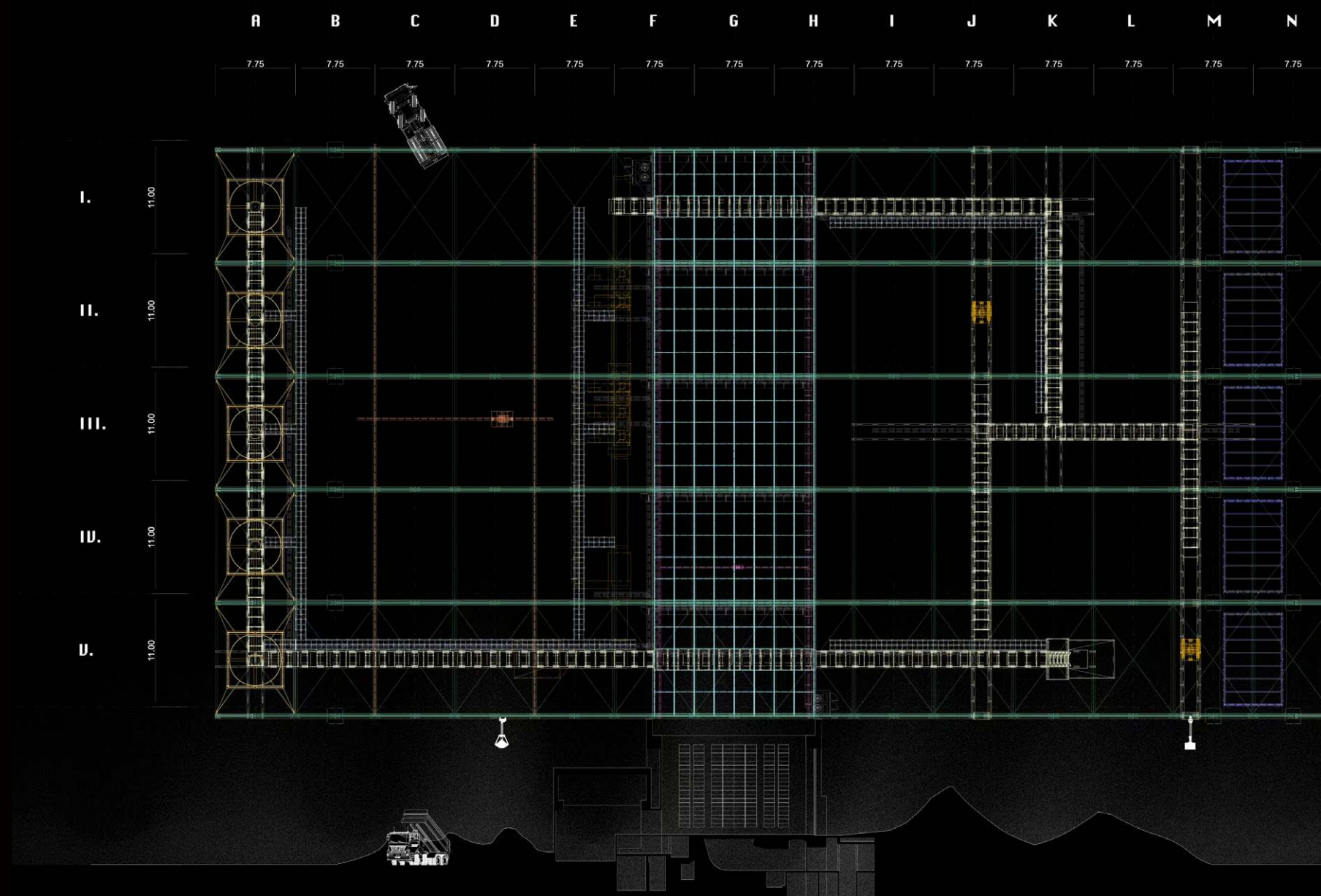


The devaluation map shows the impact and distribution of undesirable infrastructure. They help stabilising land prices by turning places invisible to investors.

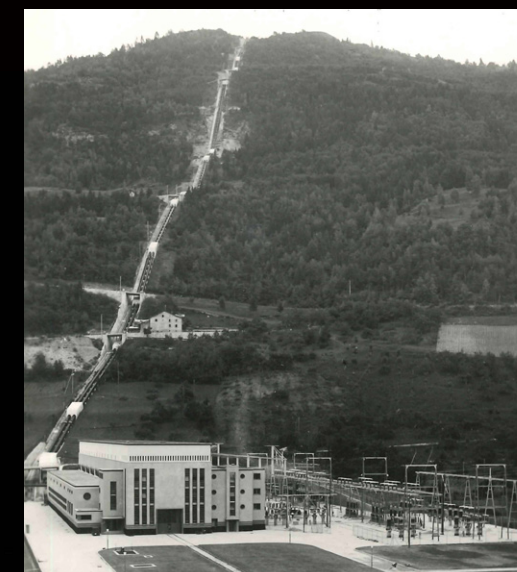
TERRAIN VAGUE - SITE

In Sion's Chandoline we found a Terrain Vague, providing space for a number of small scale, us-ages. Together they become carpet whose components are hidden from oversight, invisibility.

The terrain vague is powerful but fragile, only the Rhône now separating it from renewal masterplans.



Technical drawing of a technical ceiling

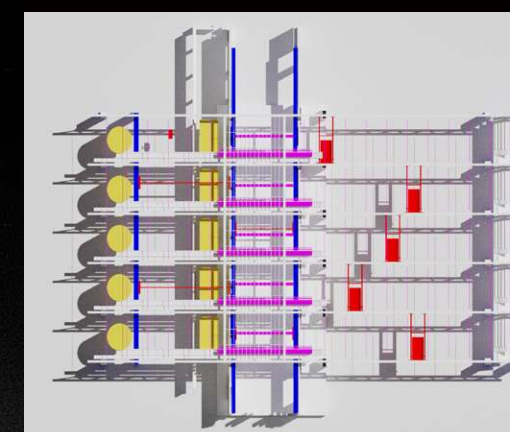
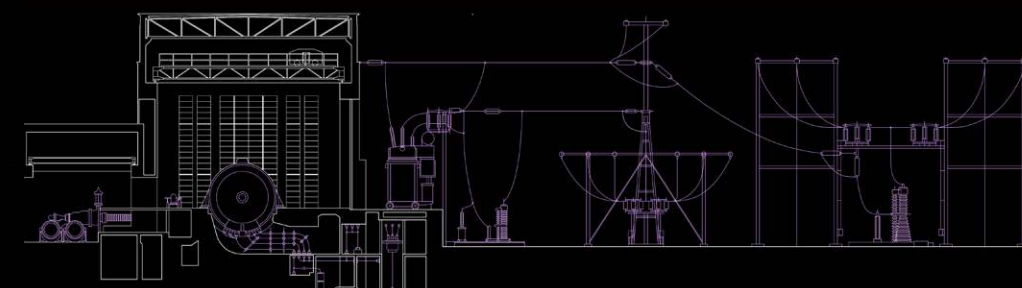


CHANDOLINE - GEM

The former hydroelectric plant is in great shape and is looking into reactivating it.

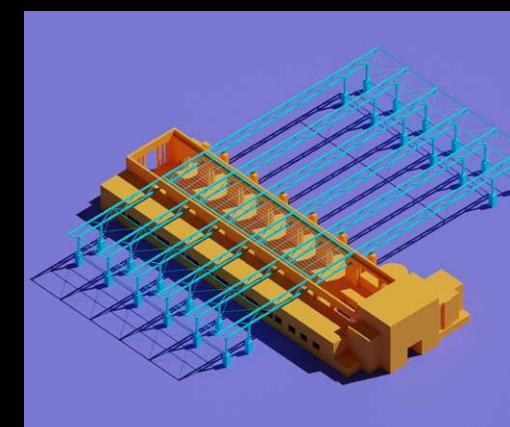
This endangers the terrain vague. We propose to pair the culture center with a gravel plant, to keep it invisible to developers.

Combining cultural activity during nighttime and weekends with the refining of concrete and gravel during the workhours.



In 1935 the chandoline was built around its 5 parallel generators, and the flow of water and electricity for each of them.

This is a great fit, since gravel plants typically produce 5 different grain sizes.



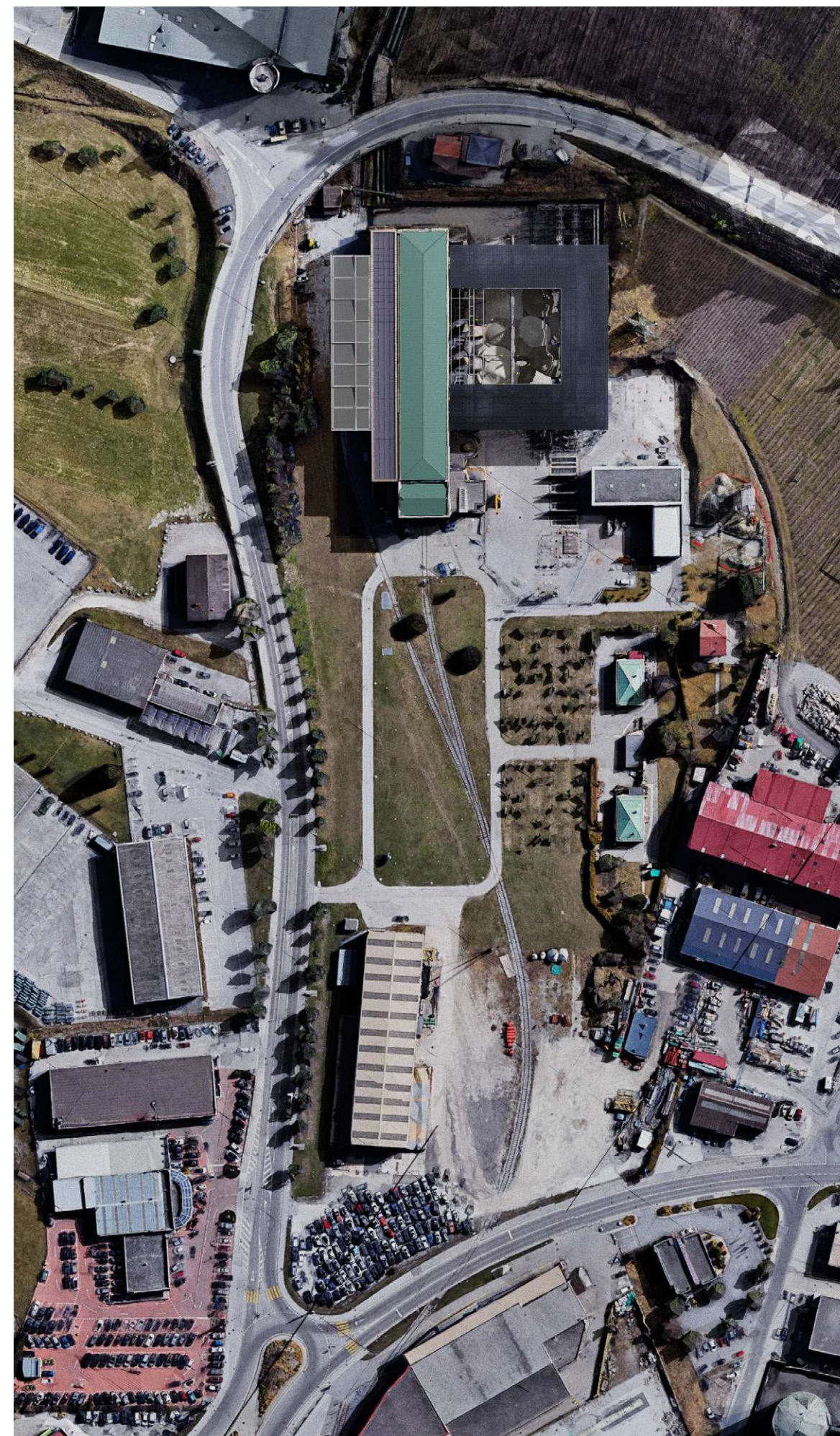
Our intervention is adding a ceiling structure that hosts everything but storage of the gravel plant.

The same roof and provides ubiquitous mounting infrastructure for the culcultural center.

Chandoline in 1935, 2022 and the future



The cultural center gets protection from its industrial cloak which guarantees dust, noise and a stream of trucks



Situation



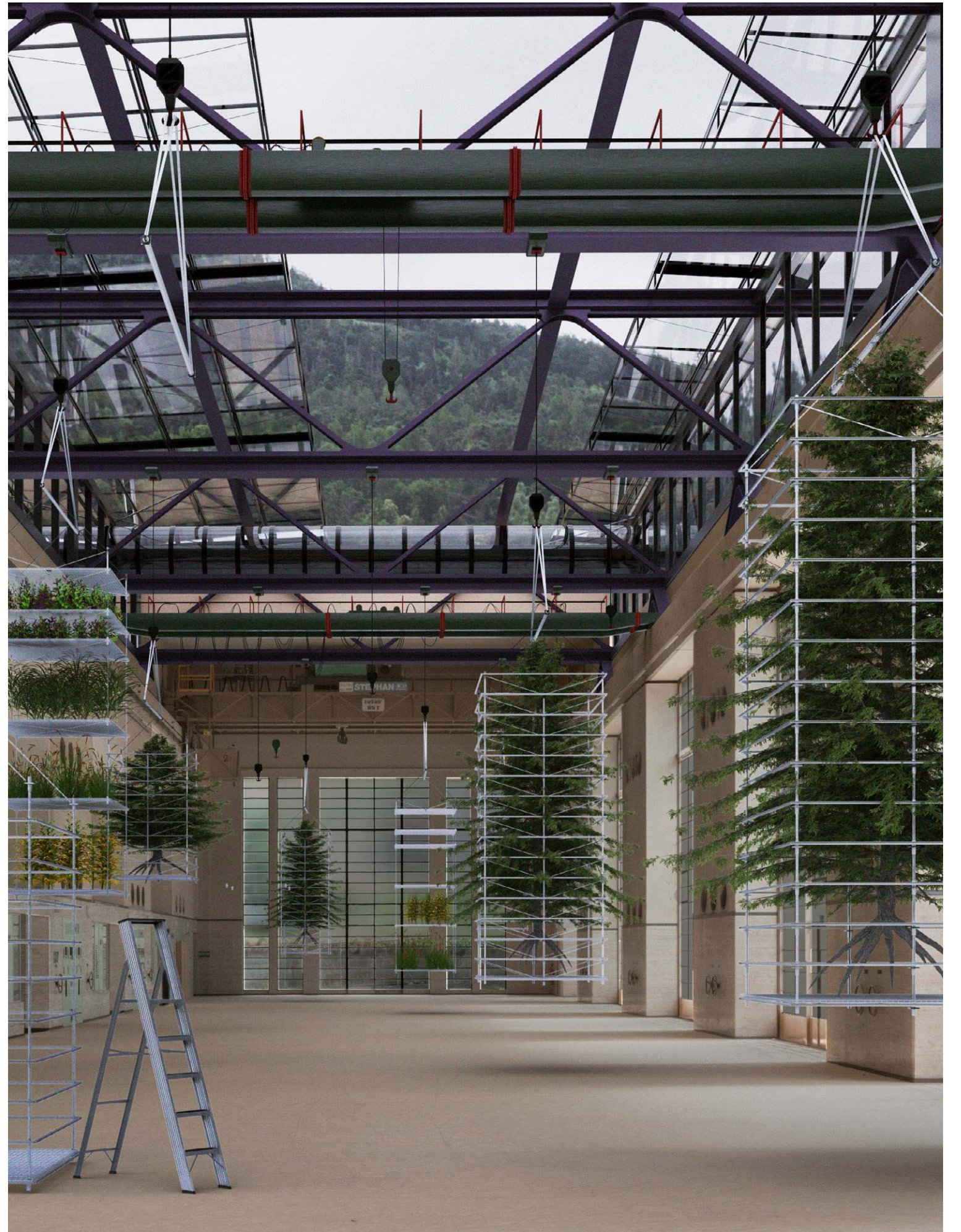
Industrial surface



Ulterior motive



Cultural landscapes



Strategic Confusion

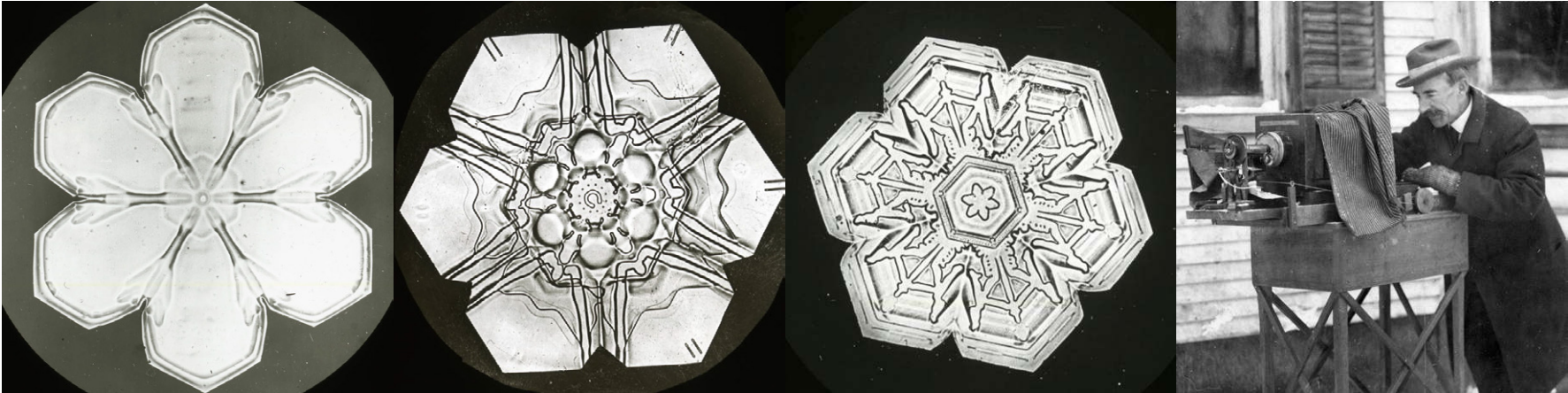
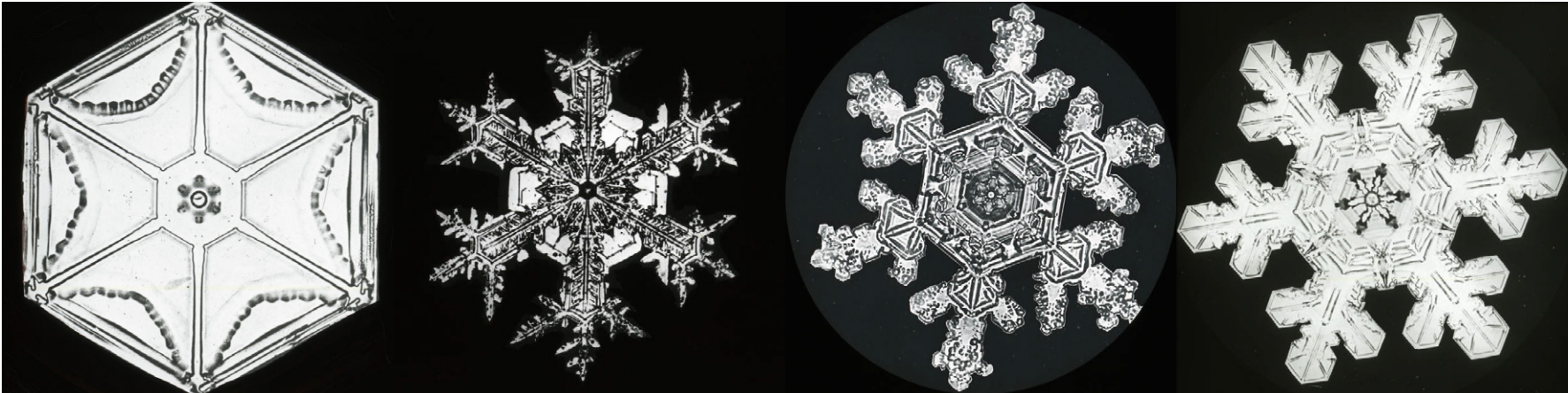
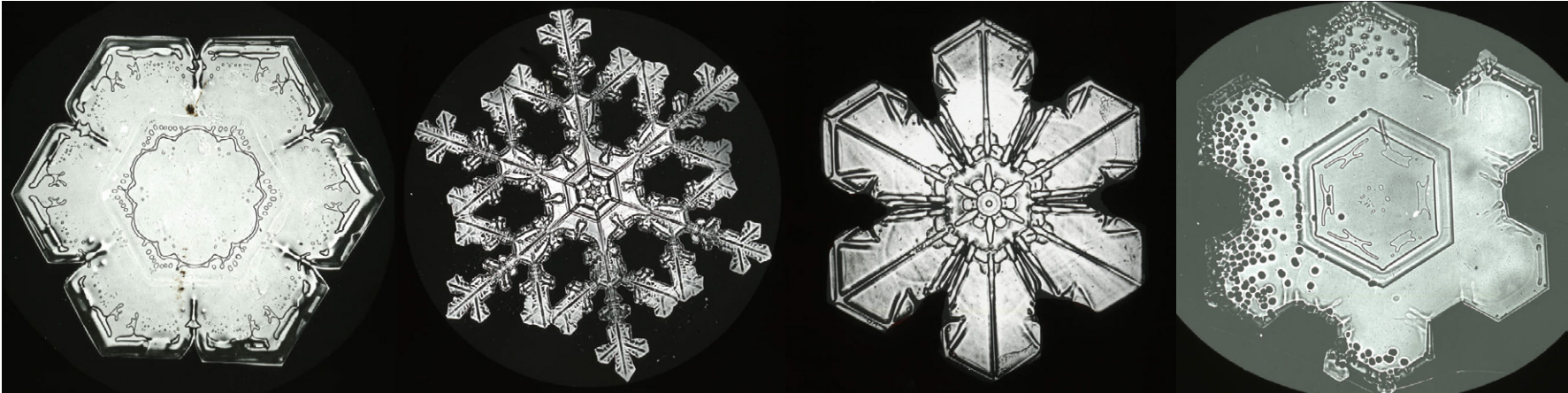
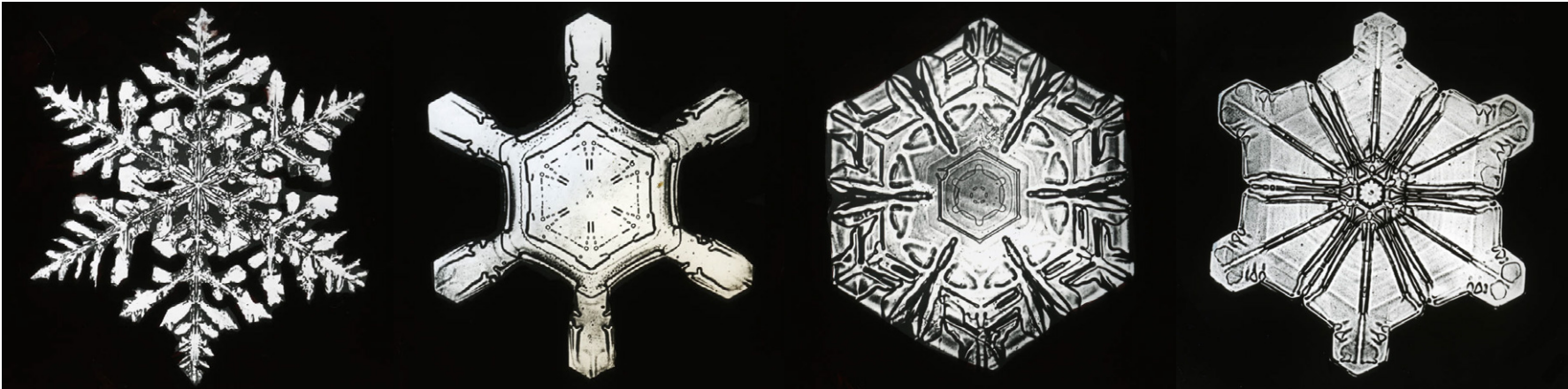
STOREY.VSS FLOORPLAN GAN STRUCTURAL SYNTH

2022-24
Focus Work ETH ITA
Chair of Benjamin Dillenburger
Advisor Anton Savov

with Leo Graf

Visual Structural Synthesizer is an architecture floor-plan generator.

We built it to take an active position as architects in light of machine learning advancements. We invite ML to join the artistic design process specific to Architecture and find a form for an integration that combines them fruitfully, rather than destructively.

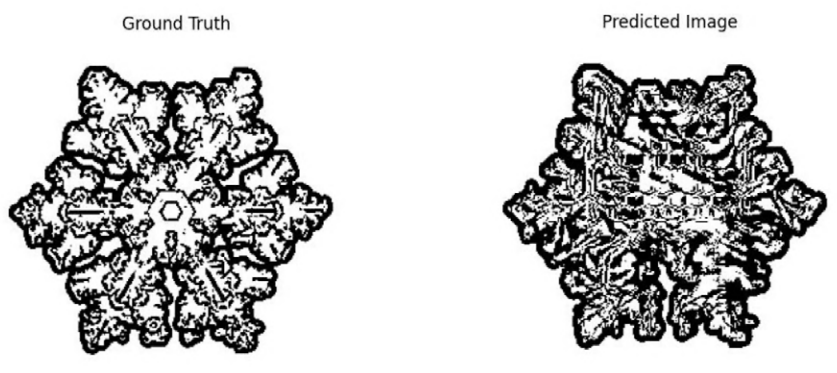
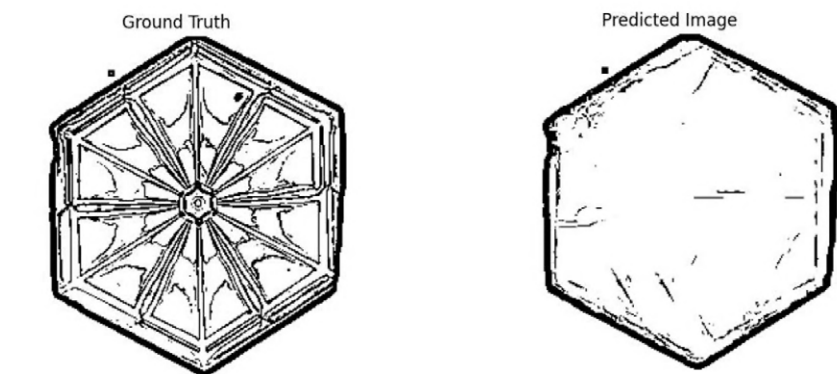
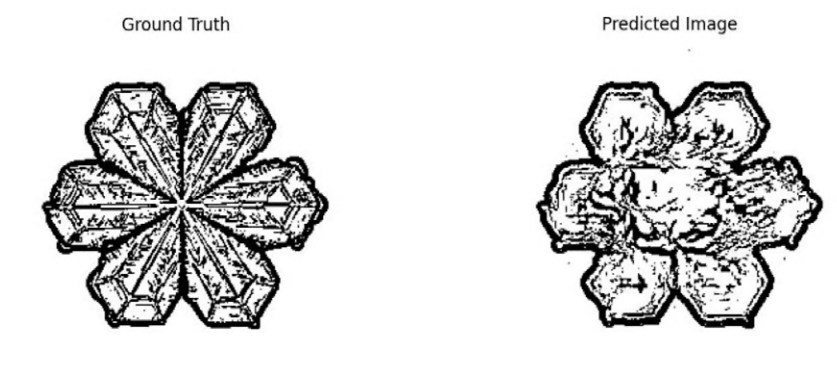
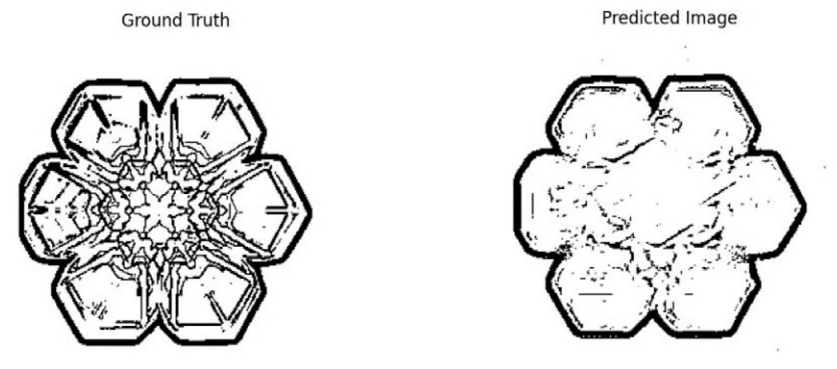


Snowflake photography W.A. Bentley

We trained on snowflakes, because their appearance is also governed by a spatial organisational principle.

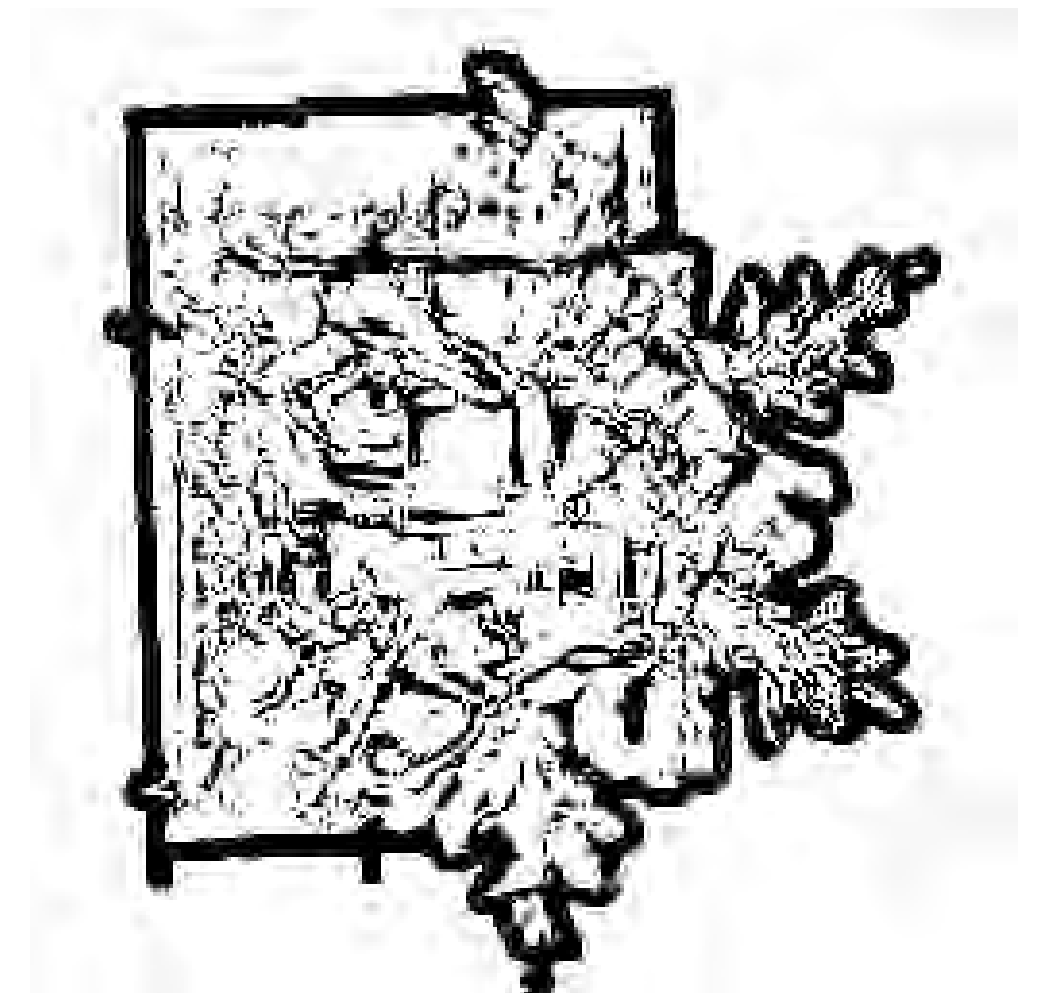
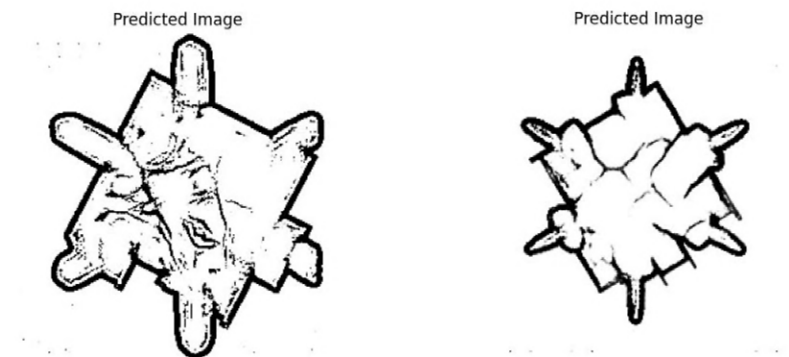
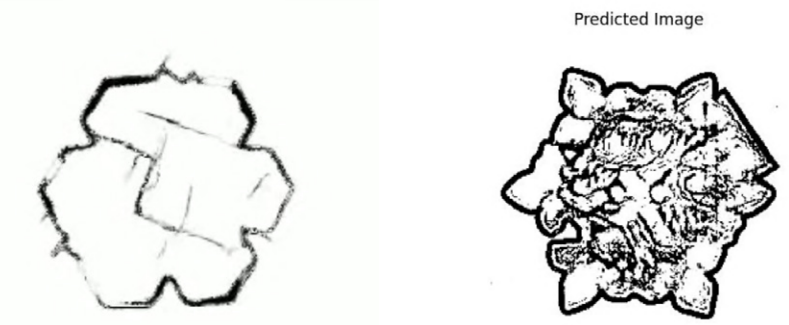
They exhibit a wide spectrum of structures and expressions, derived solely from a specific combination of two types of crystallization: plates and columns.

Predictive performance was less than with the floorplans



We went ahead with our plan to train from a hybrid set containing both snowflakes and floorplans, to see if we could spot any instances where their organisation principles would combine.

To the right a selection of results that could be argued to exhibit such behaviour.

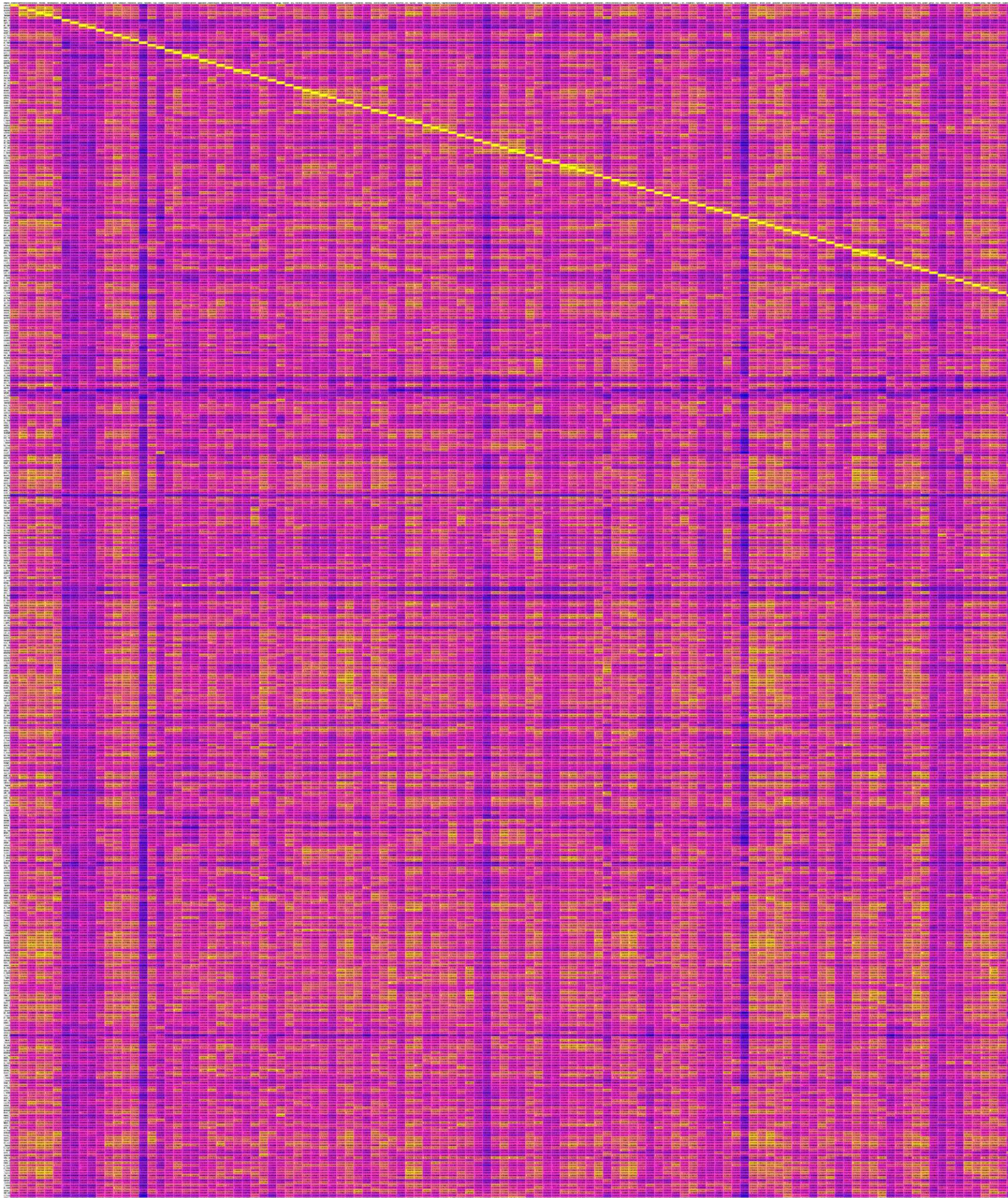


SEMANTIC SIMILARITY NONLINEAR GROUP RESEARCH AND DOCUMENTATION

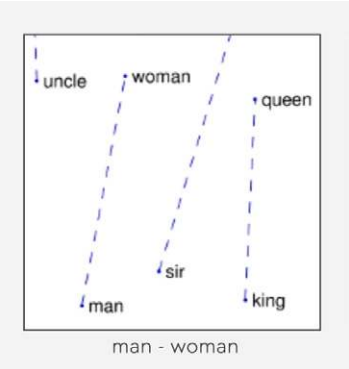
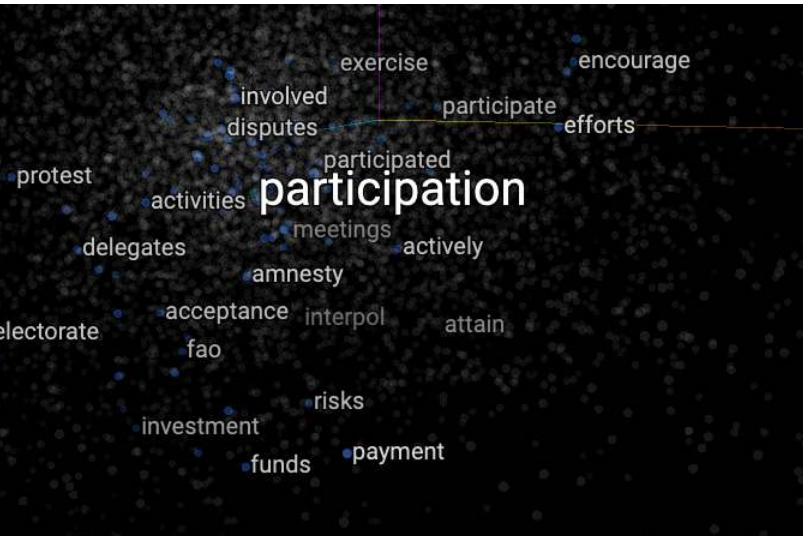


The task was to produce a reader to end the research phase. 3 Groups of 2 Students were researching one artist but 3 different sites. The difficulty of structuring what should be a free and creative research into a linear document felt limiting. Hierarchies when deciding the narrative felt inevitable.

We decided to conceive a tool that would allow us to collect all fragments of the research and could be dynamically restructured according to interest.



The code uses the GloVe Tensors, a pretrained linguistic vectorspace, where semantic meaning is embedded spatially.



The researcher defines five words that capture the importance of the piece they add to the database.

CHAOS, FRAGMENTATION, CONTINUITY, PRESENCE, VALUE

Siegfried Giedion - Building in France, 1928

"We are being driven into an indivisible life process. We see life more and more as a moving yet indivisible whole. The boundaries of individual fields blur. Where does science end, where does art begin, what is applied technology what belongs to pure knowledge? Fields permeate and fertilize each other as they overlap. It is hardly of interest to us today where the conceptual boundary between art and science is drawn."

The five words per fragment are added and a single vector representing a location in space for each fragment is found.

'chaos'	3.4971528
+'fragmentation'	-2.43907
+'continuity'	-1.1227419
+'presence'	-0.96296096
+'value'	-3.6230102

A cosine similarity operation finds their distance from each other. It is performed between each possible pair in the database, and stored in the similarity matrix.

Now the body of research can be searched in many ways. For example by asking for the close friends of a single fragment, it will display which other fragments have the smallest distance.

0.91323245

REPRESENTATION, MASK, CONTINUITY, MODERNITY, TRADITION

Bernd Nicolai - Volkshäuser und Reformarchitektur, 2009

Das 1907-1910 von Johann Streiff und Gottfried Schindler errichtete erste alkoholfreie Volkshaus in Zürich betonte in seiner Schlichtheit den sozialen Impetus. Aus Kostengründen wurde auf teures Material verzichtet. Der einfache Putzbau fügte sich mit seiner klaren Fassade und seiner Beschwörung kleinstädtischer Architektur sowie dem Akzent des vorspringenden Treppenturms harmonisch in die Bebauung am Helvetiaplatz ein.

0.93130624

CONTINUITY, VALUES, CLASSICISM, PRESENTATION, TRADITION

Hans Hollein



0.9203477

REPRESENTATION, IDENTITY, CONVERSATION, VALUES, REVOLUTION

Marcel Duchamp - Portrait, 1917



0.93549603

REVOLUTION, YOUTH, VOICE, IDENTITY, REPRESENTATION

Volkshaus 1968



0.83047146

CHAOS, FRAGMENTATION, CONTINUITY, PRESENCE, VALUE

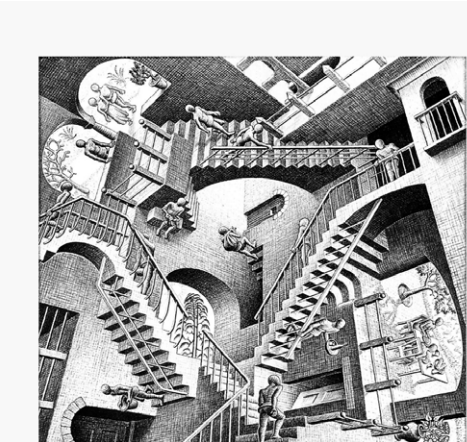
Siegfried Giedion - Building in France, 1928

"We are being driven into an indivisible life process. We see life more and more as a moving yet indivisible whole. The boundaries of individual fields blur. Where does science end, where does art begin, what is applied technology what belongs to pure knowledge? Fields permeate and fertilize each other as they overlap. It is hardly of interest to us today where the conceptual boundary between art and science is drawn."

0.8511897

DISORIENTATION, CONFUSION, ORDER, CHAOS, IDENTITY

Maurits Cornelis Escher - Relativity, 1953



2021
Design Studio Freek Persyn
with Linus Arnold, Julian Volken

SENSING SEEBACH

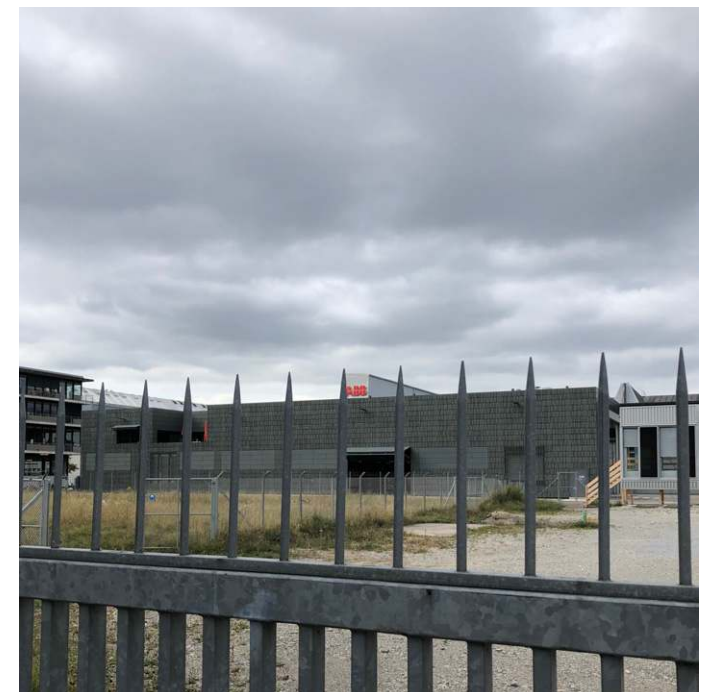


Our investigation of Seebach was motivated by the question: What is quality for all? Sensing and trying to make sense of Seebach produced the realisations: Initially, the space oftentimes comes across bleak, as if it suffered from a lack of abundance.

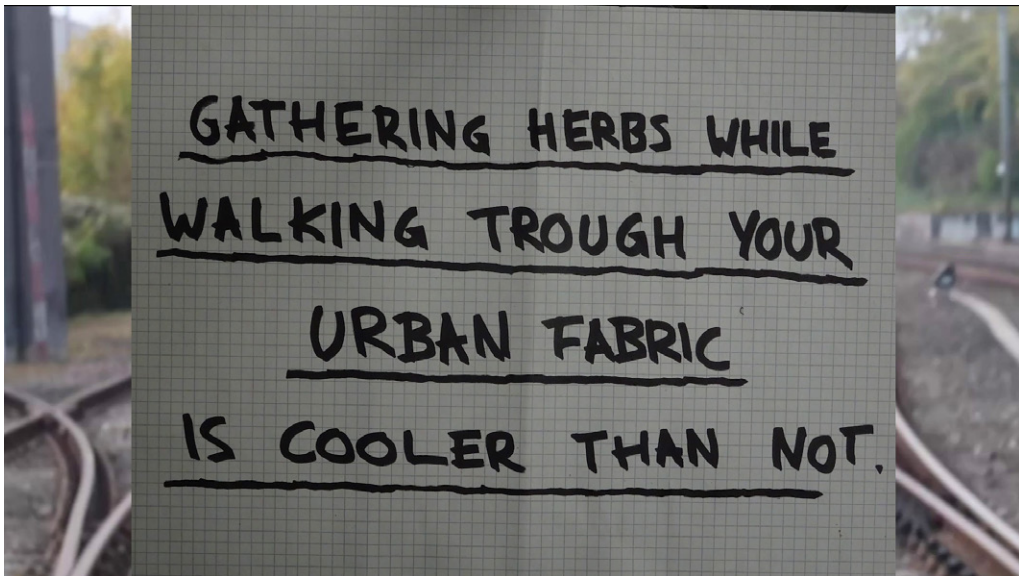
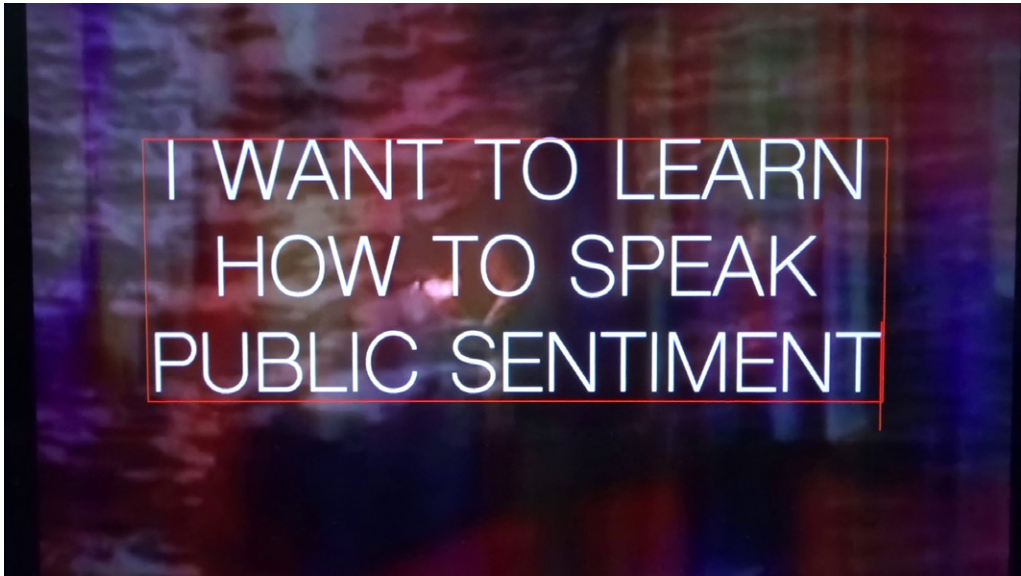
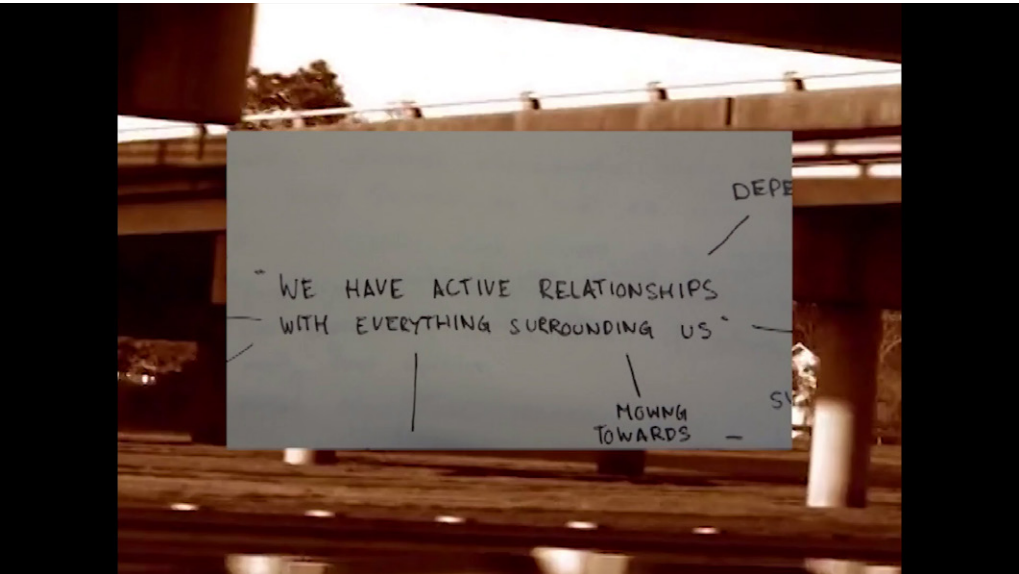
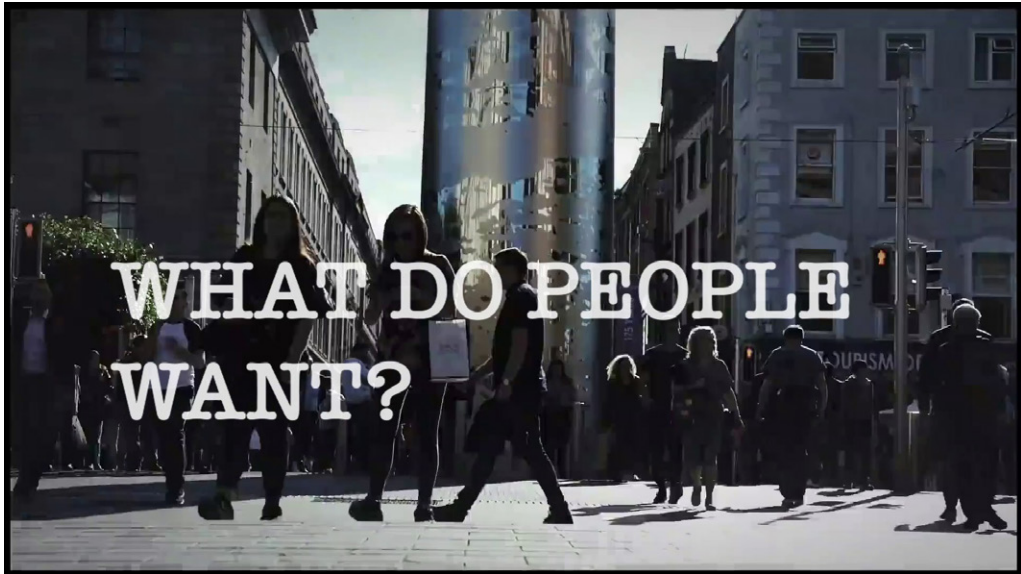
The opportunity to analyze the space repeatedly, however, reveals the opposite: everywhere history, opportunities - many hidden layers of information.

As information became Knowledge, our subjective experiences improved. The alienating effect of the simple-clean-boring mask lifted to reveal the complexity and abundance and their part in a normal and familiar human experience: The issue lies therefore in communication. We used this to identify a duty for Architecture, the surface of the built environment.

We explored the nature of hidden abundance, how to read, translate and express it. The product is two short films.



MOVIE 1: PUBLIC SENTIMENT



MOVIE 2: SENSING ABUNDANCE



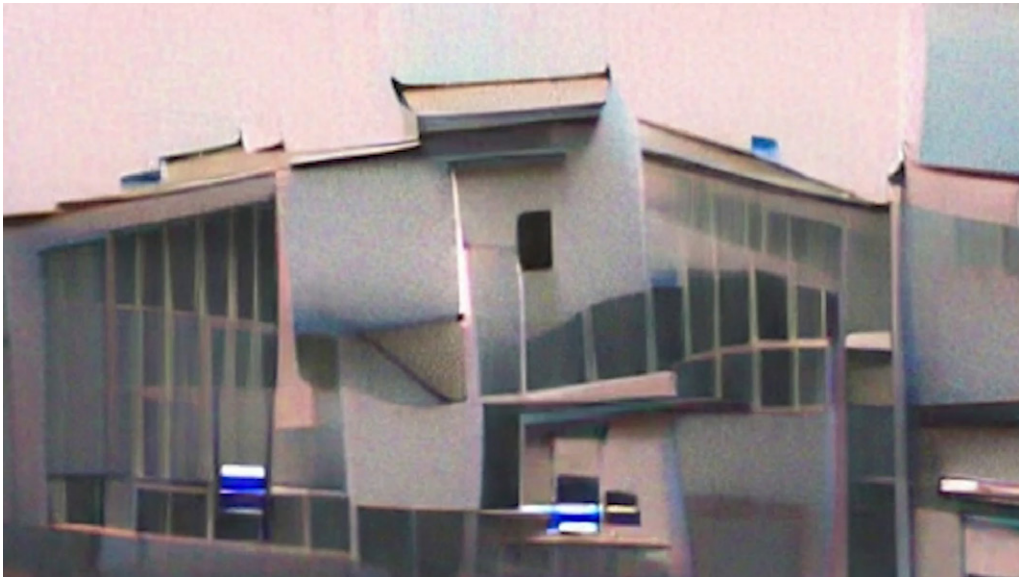
"8000 Russians camped at the site during the battle of Zurich, 1799. During construction of Grünhaldenstrasse around 1900, sabers and other military items were found."



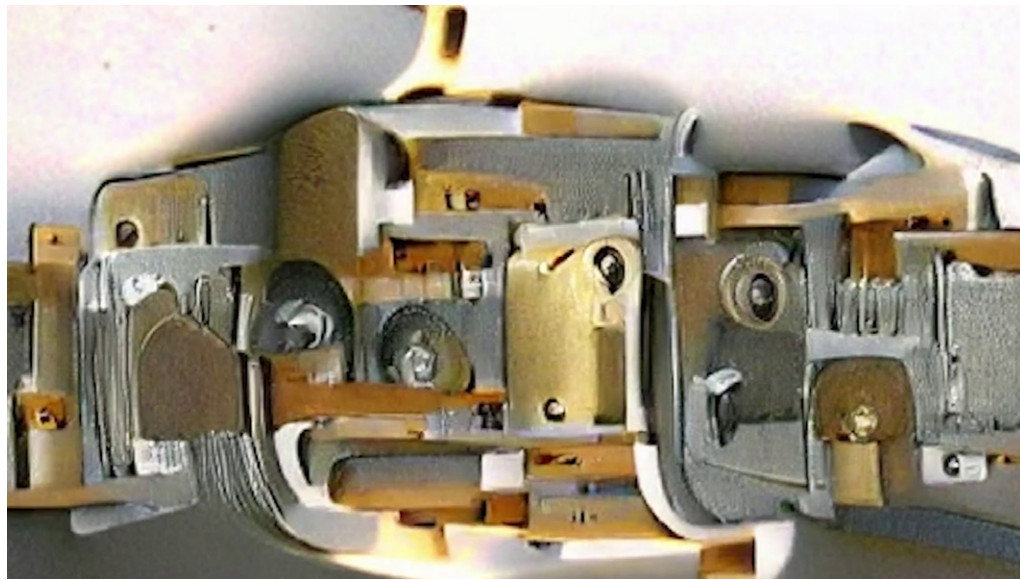
"8000 Russians camped at the site during the battle of Zurich, 1799."



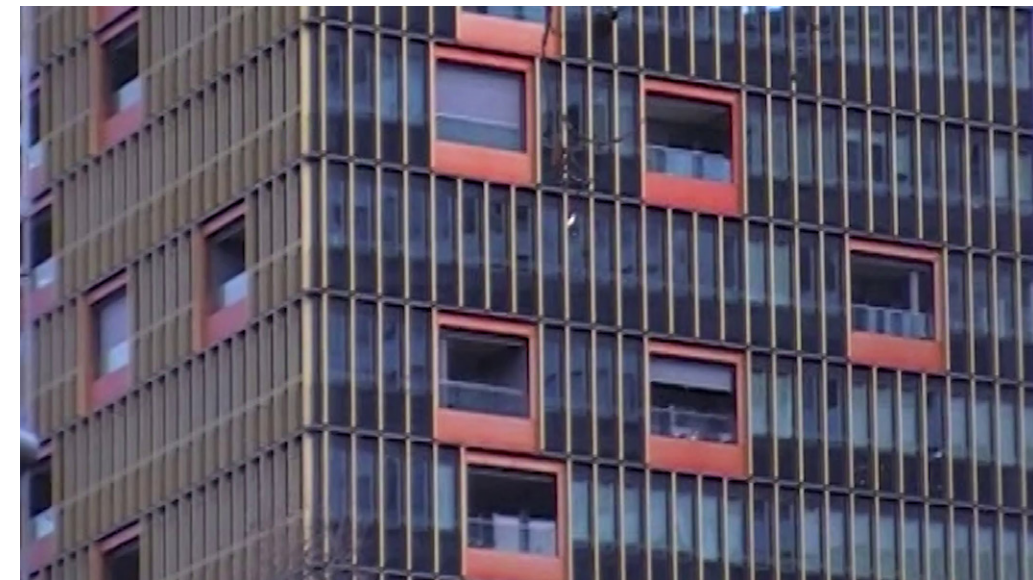
"Some 20'000 years ago, a small river called 'Schürbach' heaped up a lot of stones at the location we're looking at, which lead to a small elevation."



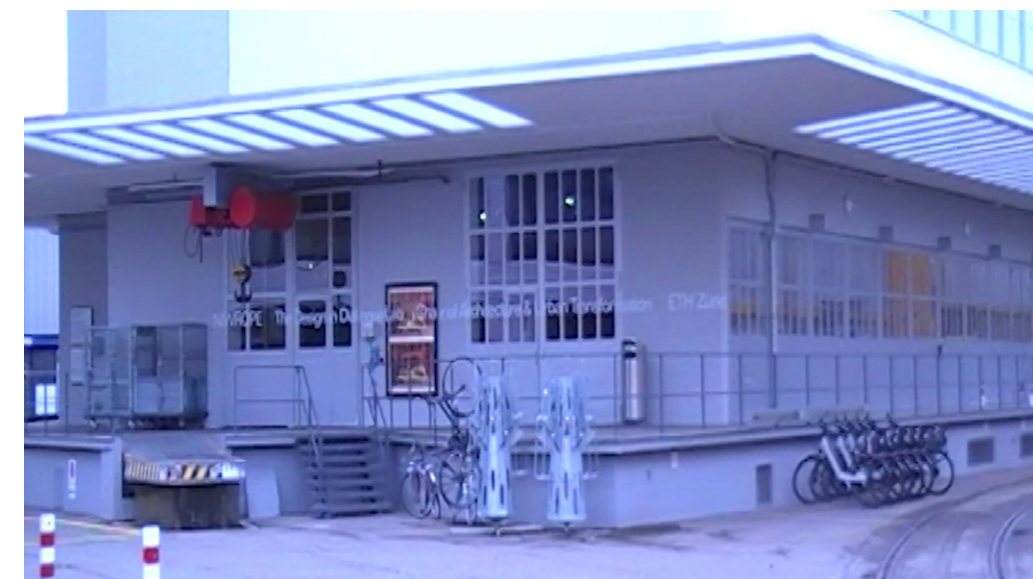
"At the time the block was built as it stands today, it was perceived as a symbol of modernism in seebach."



"In 1952, E. Keller opens a hardware store. In the workshop in the back he fiddled around with new key systems and invented the Keso lock in 1959."



"The right angles, the clearly recognizable grid in the facade and an efficient floorplan are evidence to the structures that dominated construction as well as society."



DREAM TOGETHER

2021
Tbilisi Architecture Biennial 2020
Panta Rhei Collaborative

with Benedikt Wahlbrink, Eugenio Capuccio



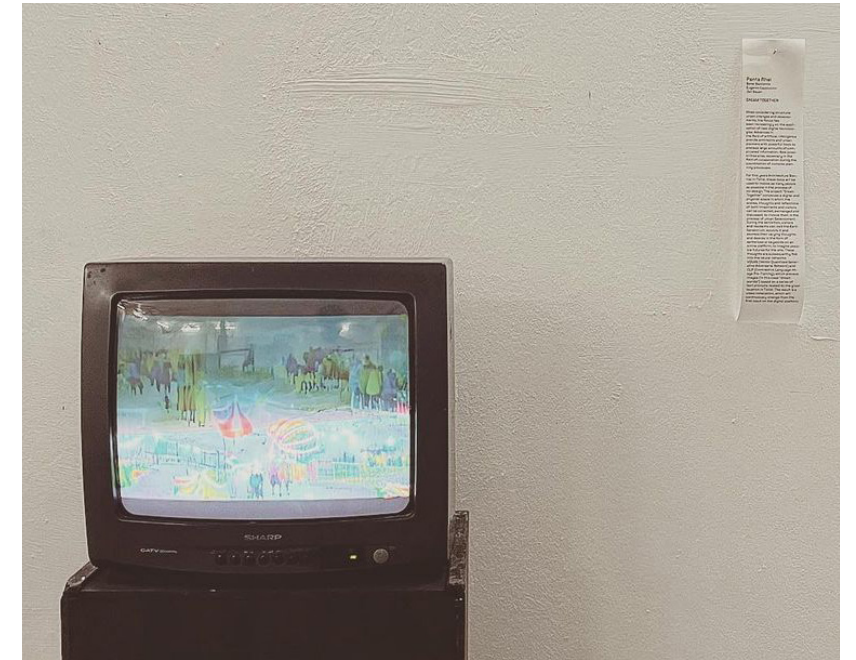
Dream Together is a contribution which me and collaborators from the Panta Rhei Collaborative were invited to develop for the Tbilisi Architecture Biennial 2020.

The Kartli Sanatorium is a squat outside Georgias capital. The recent displacement of IDPs from Abkhazia who have lived there for more than 30 years was adressed in the wider context of the biennial.

We conceived an interface where the inhabitants were able to communicate their minds. We then visualised the answers using open source image generation technology.



The result was exhibited at the biennial where we discussed the role of generative AI in the public discourse of the built environment and its potential to amplify the voices of those untrained in visualisation, especially in visual subjects such as the built environment.



TOGETHER WE
ABSORB
COLLECT
FEED
STORE
RECEIVE
CONTINUE
COMBINE
MERGE
GROW



TO
BLEND
MERGE
OUTLINE
OPEN
PORTRAIT
SHAPE
DISCUSS
INVESTIGATE
EXPLORE
EMBRACE
RENDER
ATTRACT



EVERY
IDEA
IMAGE
WONDER
PERSPECTIVE
QUEST
SECRET
VISION
TALE
MIND
STORY
DESIRE
REFLECTION
FEELING

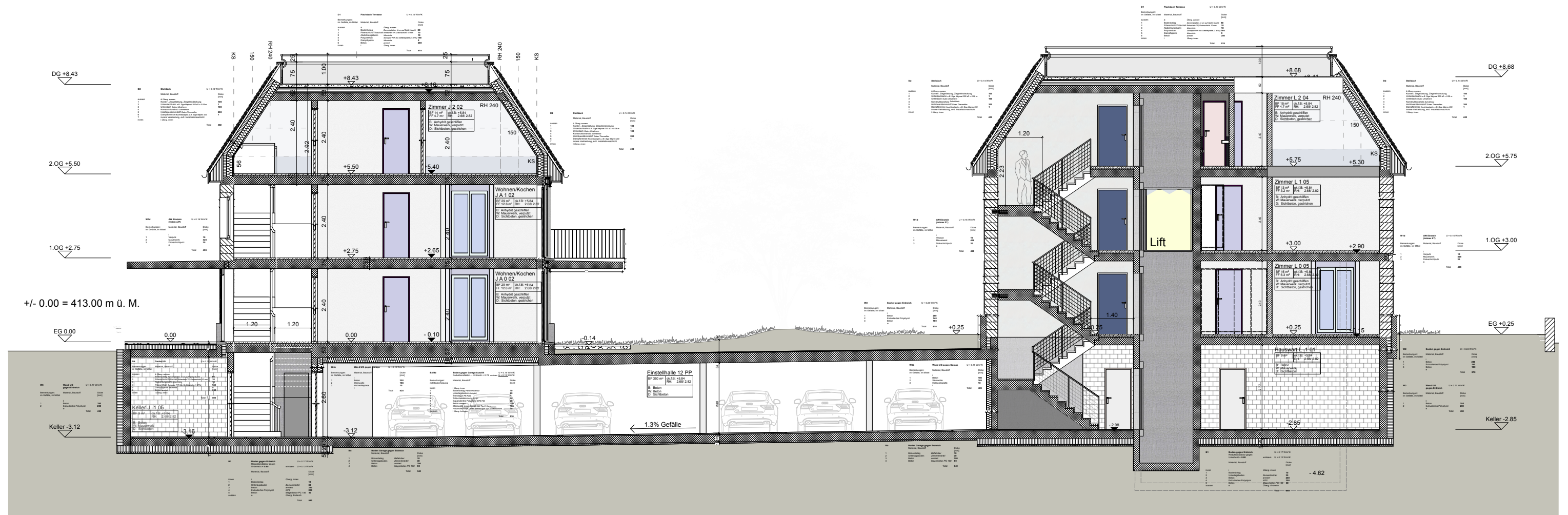


"Dream Together*" stills

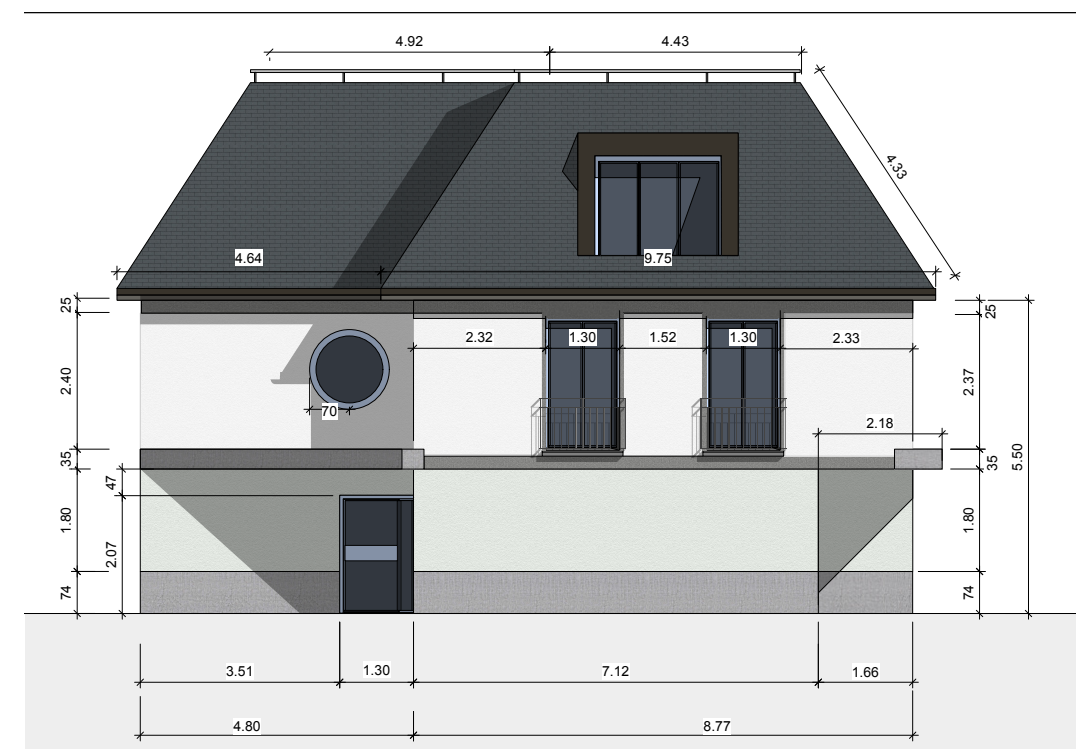
AUSFÜHRUNGSPLANUNG MFH DIETIKON

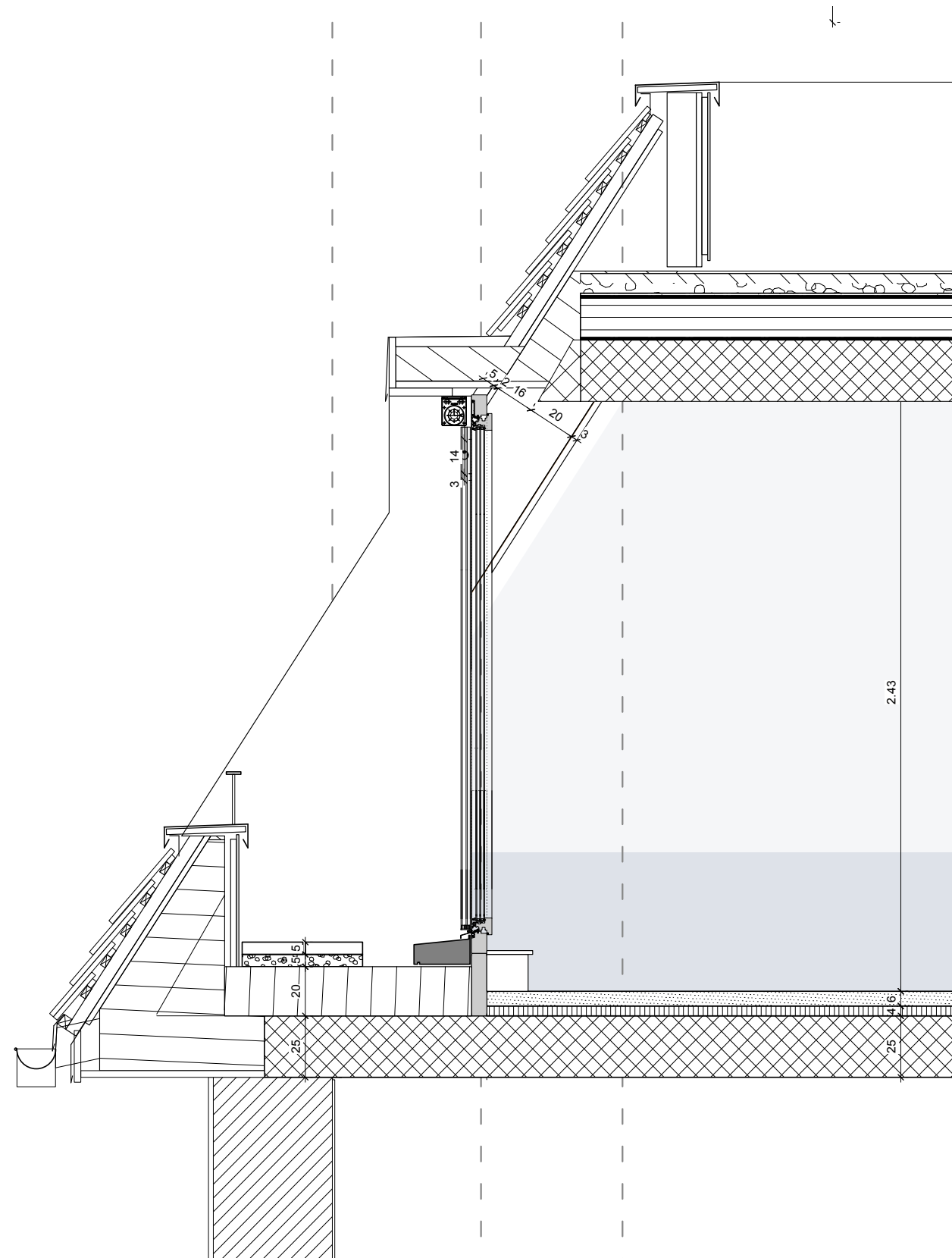
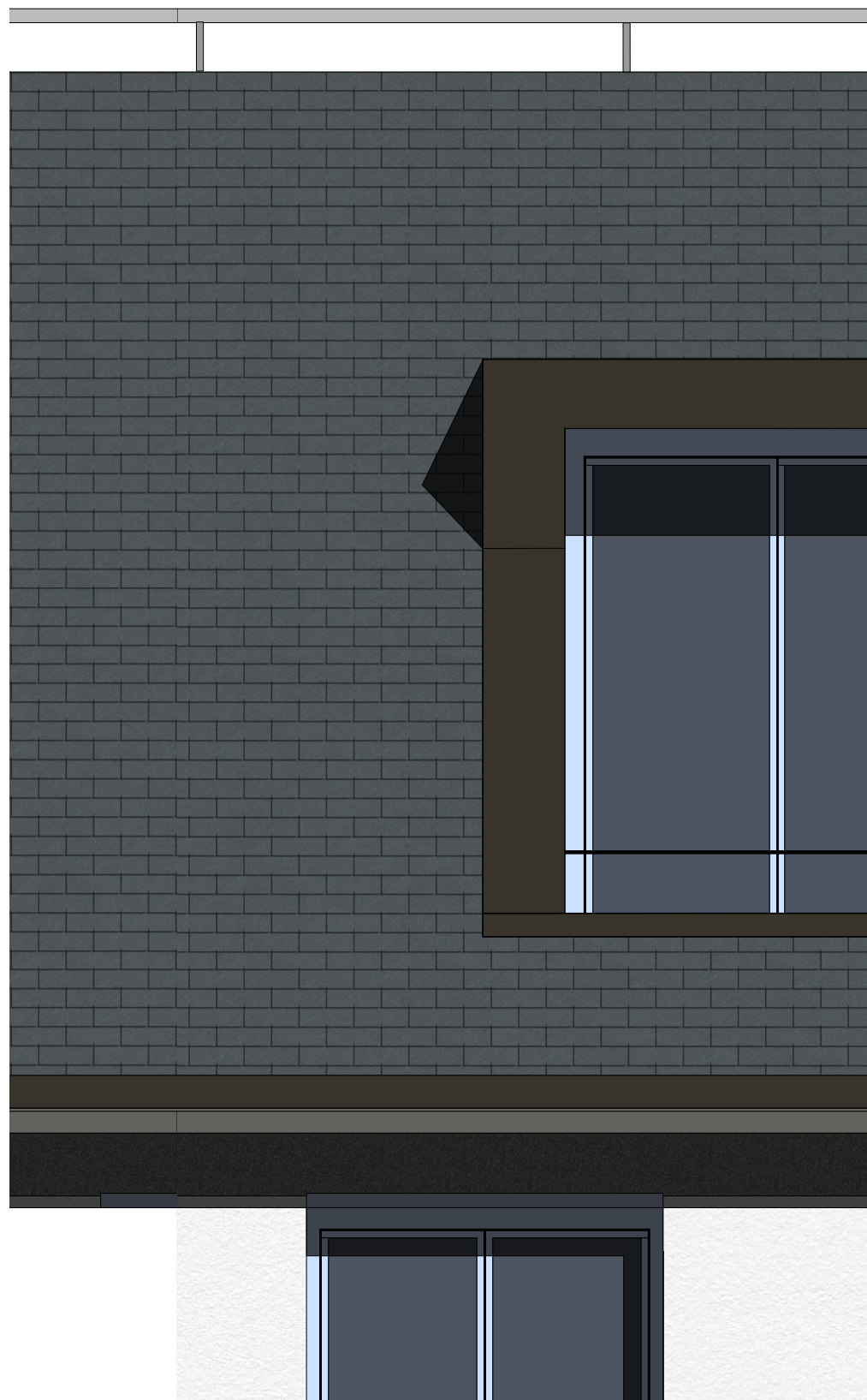


Aussenvisualisierung



Längsschnitt





Detail Dachgaube



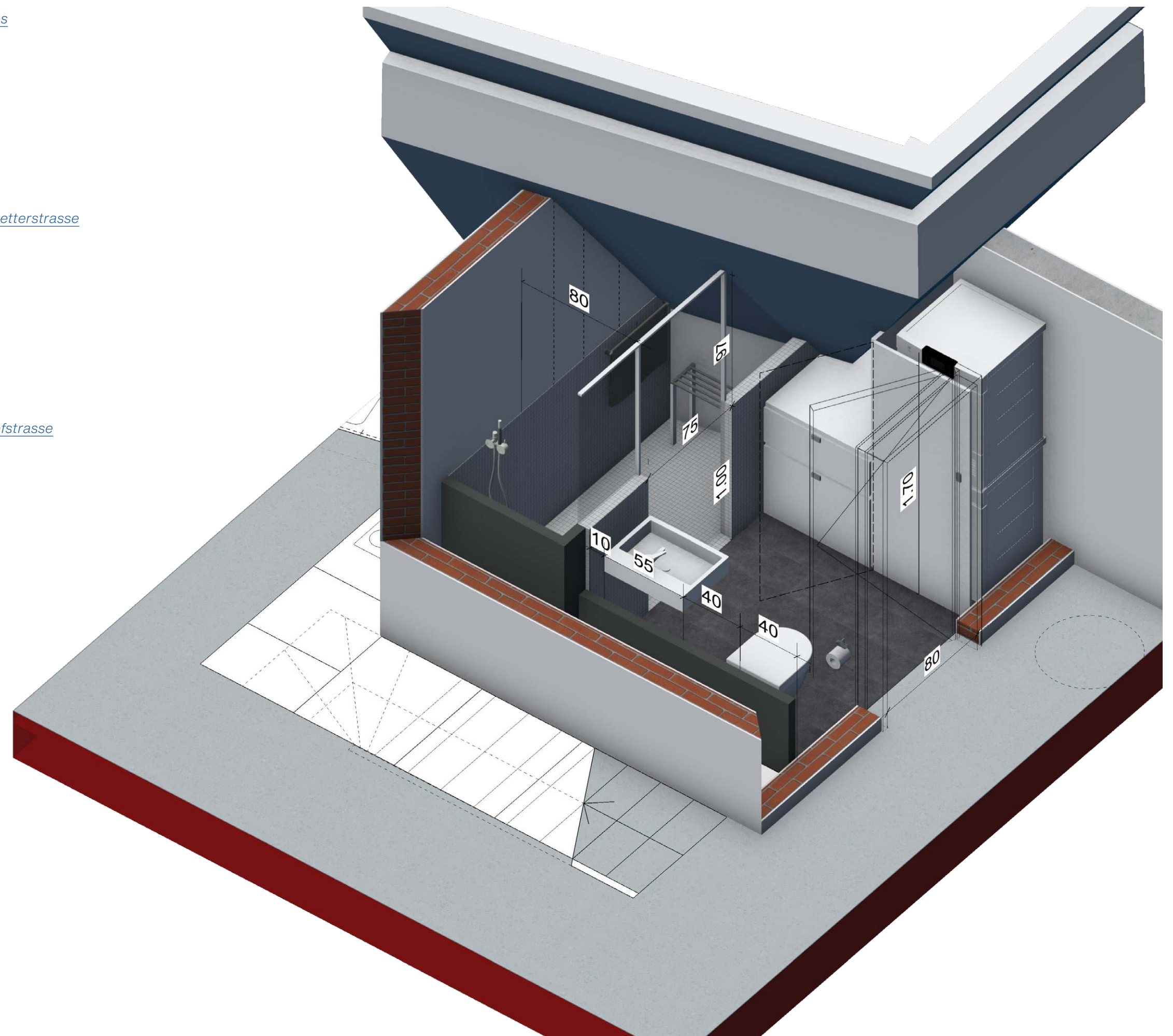
3D Modell Stoos



3D Modell Altstetterstrasse



3D Modell Josefstrasse



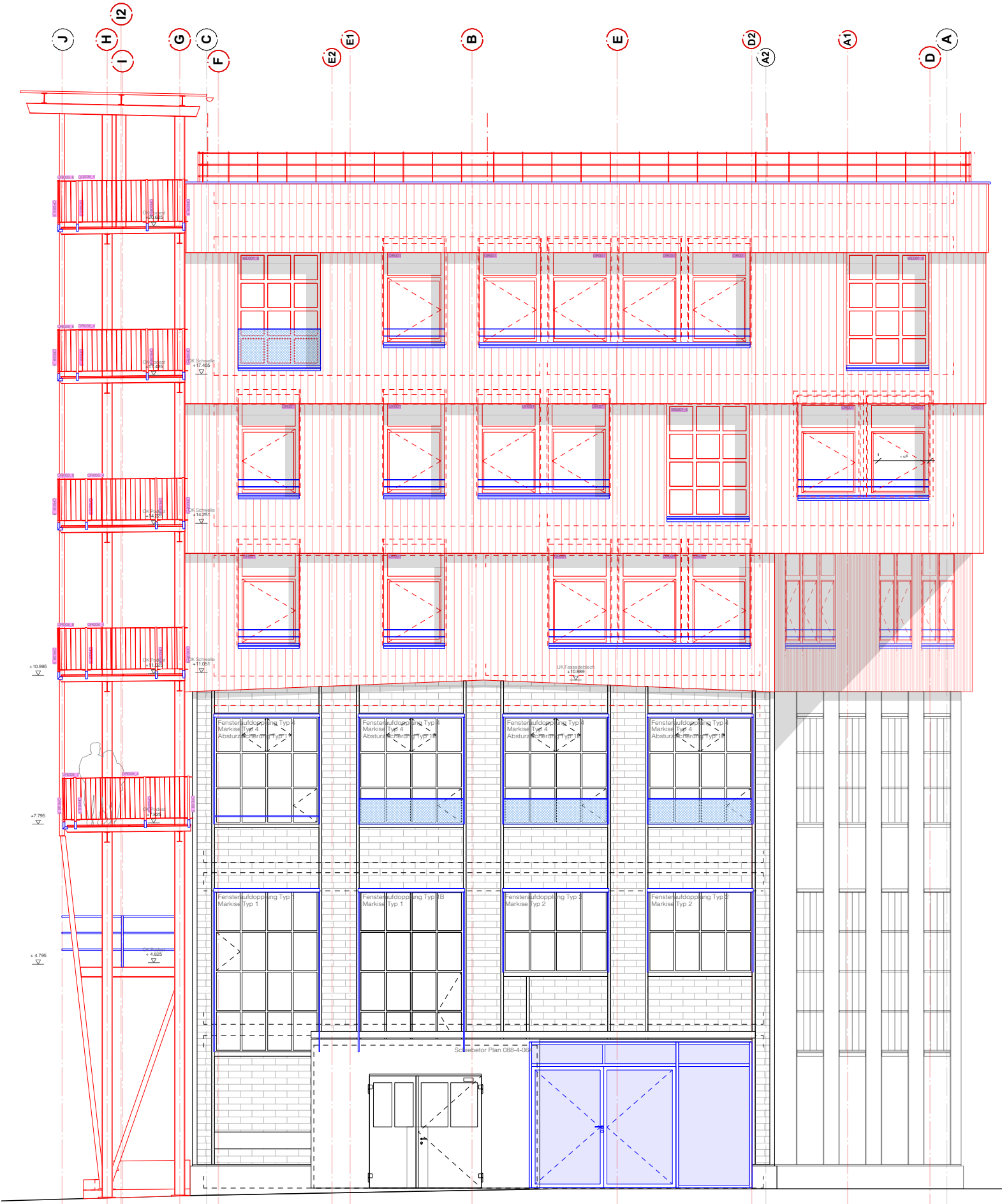


Visualisierung Umbauprojekt Altstetterstrasse

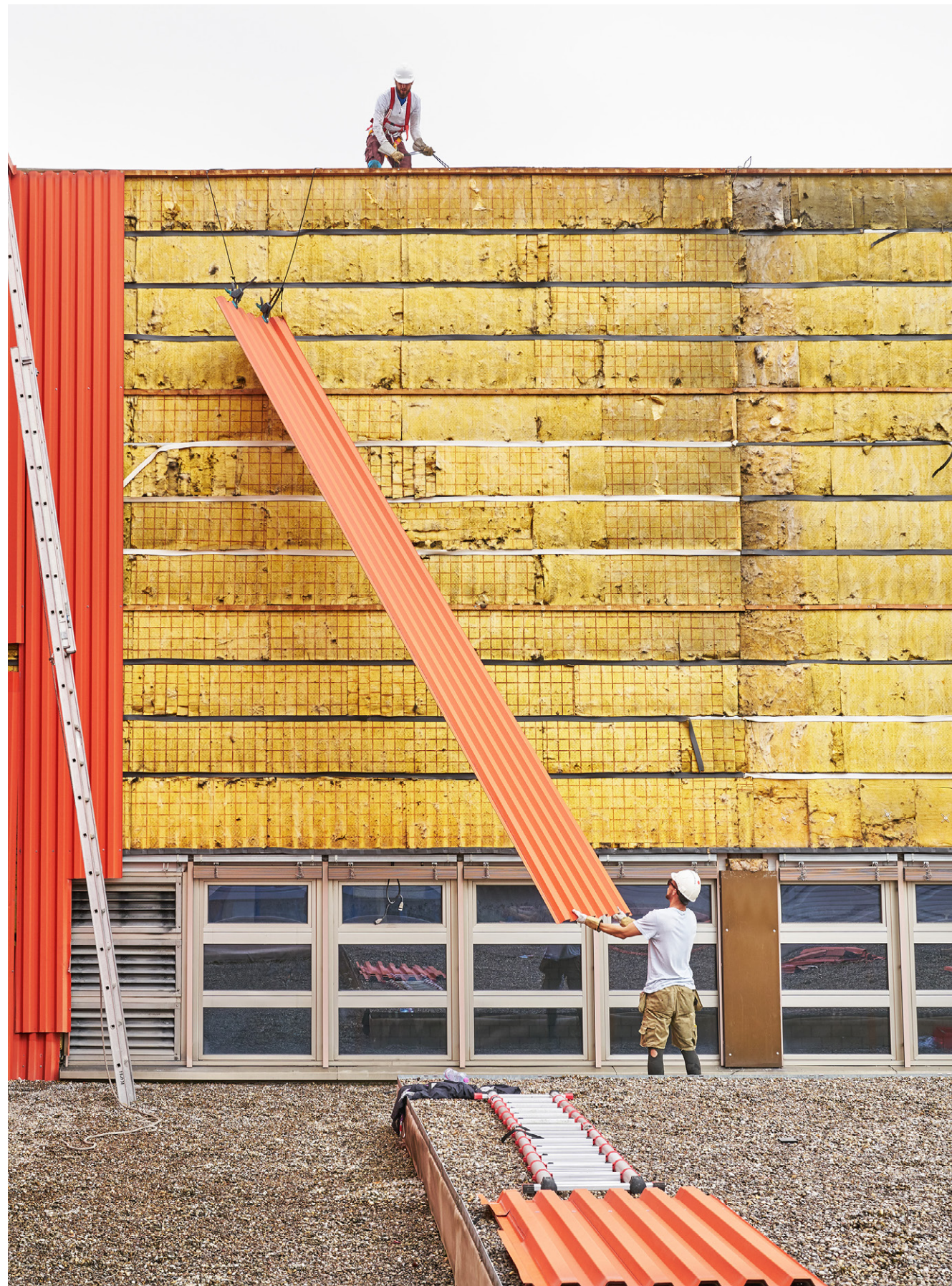
BAUBÜRO INSITU

BAUTEILJAGD K118

Best.	Neu def.*1	Neu undef.*2	Abbruch



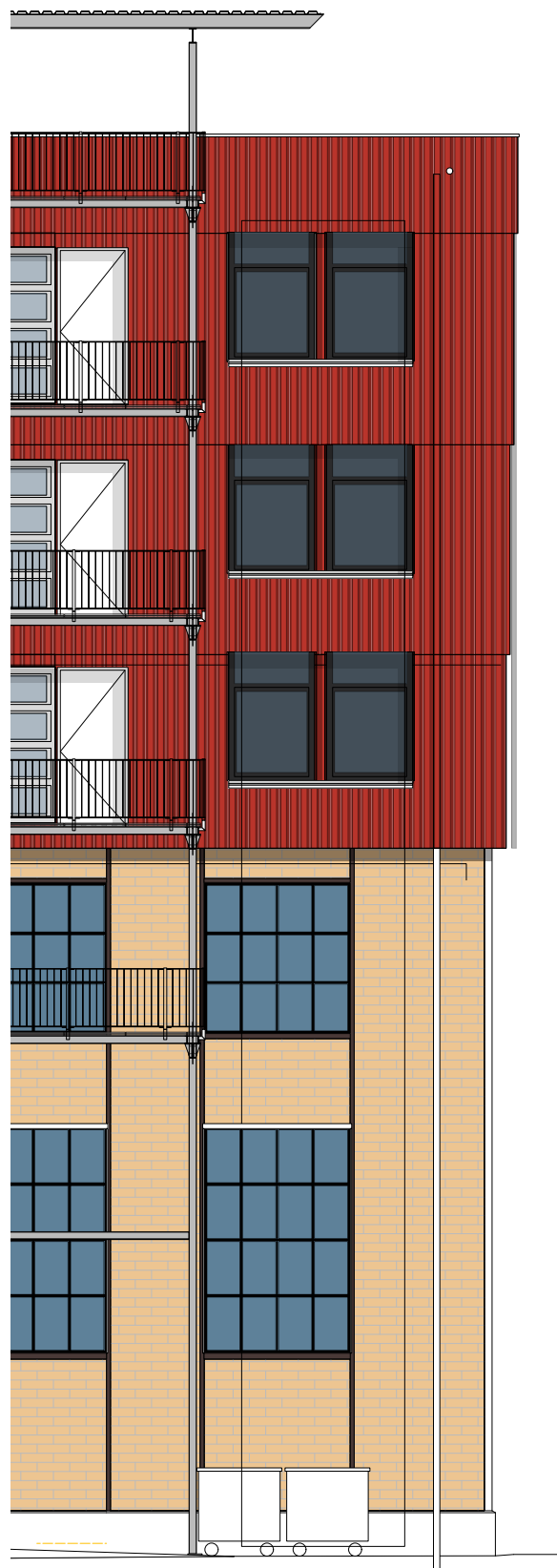
Ansicht Kopfbau Halle 118



Trapezblechernte



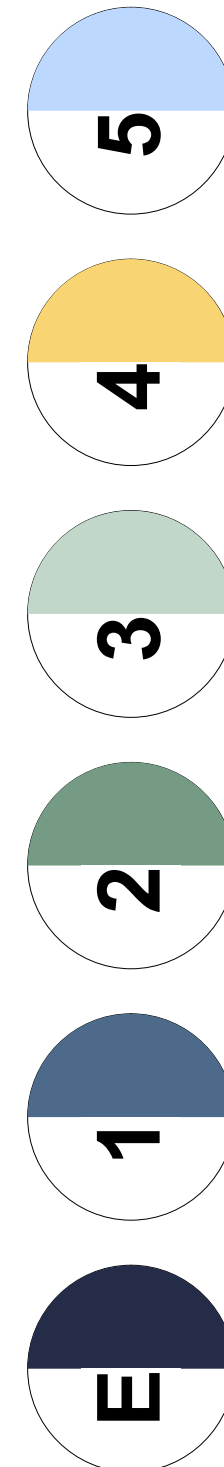
Vermassung Systemelemente



Materialisierung



Farbkonzzept Stockwerksignaletik



Wiederverwendung der originalen Signaltafeln





Reuse serendipity