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ROOTS

A REMINDER OF MEMORIES IN TIMES OF URBAN RENEWAL

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CHALMERS
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ROOTS

a reminder of memories in times of urban renewal

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REBECKA BOLT

“ The door handle
is the handshake
of the building ”

– Juhani Pallasmaa (2012, p. 62)

ABSTRACT

ROOTS: a reminder of memories in times of urban renewal

Cities are in continuous transition. Dwellers come and go, cultures meet, innovation thrives, and the built environment is constantly transforming. But what happens to our heritage when the cityscape changes? This thesis is a response to future needs and a reminder of the potential in the existing. It studies how architecture, that is grounded in collective memories and identity, can enable heritage to adapt yet flourish in an urban and historic context – namely the slaughterhouse in Gamlestaden. The area has roots that reaches deep in the history of Gothenburg, but it also faces extensive development plans due to urbanisation and population growth.

Paying attention to old buildings is important for two major reasons. Firstly, for our feeling of rootedness in time and space. And secondly, because reuse of the existing building stock is the sustainable option. By considering history as dynamic and alive, one can care for the future by caring for, and learning from, the past and present. Heritage and sustainability are hence related, and the slaughterhouse has a story to tell, about memories as well as development. Moreover, it is available space that awaits a new purpose.

In order to unfold collective memories of the place, transdisciplinary theoretical studies form the base of the thesis. Point of departure is architectural theory and phenomenology, enabling a deep dive in architecture and its connection to remembrance and meaning. Whilst relying on theoretical research, the practical exploration departs from context-based design and a small-scale approach to further strengthen connectedness to heritage. The result is a speculative vision for the slaughterhouse, and a transformation proposal for one of the buildings on site. Food remains the main theme within the area, but a circular system makes the old slaughterhouse into a pioneer once again. The idea is a business model based on pedagogy and experience, where a network of actors shares a common goal. The outcome is local and sustainable cultivation, production, and consumption, and not the least, revived memories.

Keywords: collective memory, phenomenology, heritage, transformation, slaughterhouse

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P R E L U D E



Figure 1. Gothenburg Slaughterhouse in 1910 (Göteborgs stadsmuseum, Karnell, 1910). Reprinted with permission.

BACKGROUND

This thesis is a study of a historical context that faces changes, both in its surrounding cityscape, and in its own character. The intention is to allow history to be dynamic and alive; to be adaptable, but true to its essence. It further underlines that heritage is more than monuments and museums; that cultural values often are found in everyday life and in unexpected places.

An old slaughterhouse awaits a new purpose. It was written in 1955 that the slaughterhouse in Gamlestaden can never, and should never, be a destination for visitors. Few would probably appreciate a visit at the municipal institution that executes animals on assembly line. It has a rough sense about it, the slaughterhouse. Nevertheless, it is a piece of heritage that has played a vital role in Gothenburg's history (Lärn, Nyborg, and Sandesjö, 1955). Despite the predictions from 1955, the slaughterhouse is about to be transformed into a public and culinary hub (K. Wide, personal communication, November 15, 2019). Some businesses are already present on site, yet many buildings stand empty. And even though the slaughterhouse merely is 10 minutes by tram from the city centre, it is commonly known as an industrial area in the outskirts of Gothenburg.

The property owners' plan to preserve a food theme is a tool to keep memory alive, and to attract visitors (K. Wide, personal communication, November 15, 2019). Being a slaughterhouse comes with difficulties, however. Both in terms of attractiveness, but also when it comes to bringing the food industry to a desirable future. After all, the food system is responsible for 21-37% of the greenhouse gas emissions worldwide, including the entire food chain from land use and agriculture to transport, packaging, consumption, and waste. It is also stated that among all foods, meat has the highest environmental impact in terms of emissions and usage of energy, land, and water (IPCC, 2019).

In addition, the slaughterhouse is encircled by an infrastructural carousel and urban renewal plans. Its surroundings are adapting for a future shaped by population growth and climate change. The built environment is indeed expanding, and sustainability is given an increasing, yet insufficient, role in urban planning. Still, vast environmental impact derives from the construction sector. 36% of the globally energy usage and 39% of CO2 emission correlated to energy come from construction, buildings, and operations (International Energy Agency and United Nations Environment Programme, 2018). One could say that the district suffers from growing pains, but by making better use of what is already there, the environmental impact can be reduced, and meaning can be found.



Thesis definition

SCOPE

By raising intangible values, this thesis intends to awaken a will to tend to historical layers in the urban fabric, as means to reveal and vitalise heritage. In addition, sustainability strengthens the argument to care for the existing building stock in terms of reuse and resource efficiency. In short, the aim is to manage changes in the cityscape, but also to care for the future by caring for, and learning from, the past and present.

THESIS QUESTIONS

- Can architecture reveal, and tend to, collective memories of a place?
- How can the slaughterhouse's heritage outlive urban renewal?

DELIMITATIONS

Since focus is on qualitative values, technical aspects are not studied in depth. Further, the thesis does not cover urban planning or landscaping. On the contrary, the broad topic is tackled in a rather small scale by working close to one building. However, the site is crucial since heritage is tied to its context, and the slaughterhouse is a naturally limited area.

OUTCOME

The result is a written phenomenological declaration, a vision for the site, and a transformation proposal for one of the buildings. The design is a medium for communicating the academic investigation, anchored in theoretical research and practical explorations. The outcome is an alternative to fast exploitation; an alternative that focuses on reuse, layers of time, and meaning.

METHODOLOGY

Since both research and design are key elements, these phases occur in parallel as iterations along the way. Hence, research for design and research through design are combined, involving inquiry such as theoretical studies, observation, mapping, photography, and interviews.

Atmosphere, flows, details, and materials serve as point of departure to reveal, identify, and preserve heritage and memories through context-based design. In addition, speculative design methods build a narrative for the project. This allows for an open-minded and visionary outcome, presenting a possible future and the means to get there.

RESUME

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EDUCATION

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RELATION TO SUBJECT

What is it about old buildings? For long, I have been fascinated by the memories they carry. To me, experiencing a building is to travel in time and space. I become part of its narrative along with preceding encounters, and I am curious about what has happened at the very same spot, in a different time. This has awakened a will to care for layers of time in the built environment that surrounds me. Old buildings are the roots that anchor me to history and heritage, and they shape the framework for the continuation of development and future memory-making. Thus, they deserve our attention and utter respect.

VOCABULARY

THEORY

History
An objective representation of the past that provides accurate facts.

Collective memory
A representation of the past based on narratives and shared memories in cultures and communities, which empower heritage and belonging.

Heritage
The social inheritance that is handed on through generations, and that distinguishes the tradition and origin of a culture or community.

Phenomenology
A philosophical theory and research method that identifies the relation between subject and object, between human being and environment.

Bodily
The physical presence experienced by the human body through tactile contact, with emphasis on what is touched and felt.

Sensory
The translation of physical, bodily contact into what is experienced in terms of sight, hearing, sense, scent, and taste.

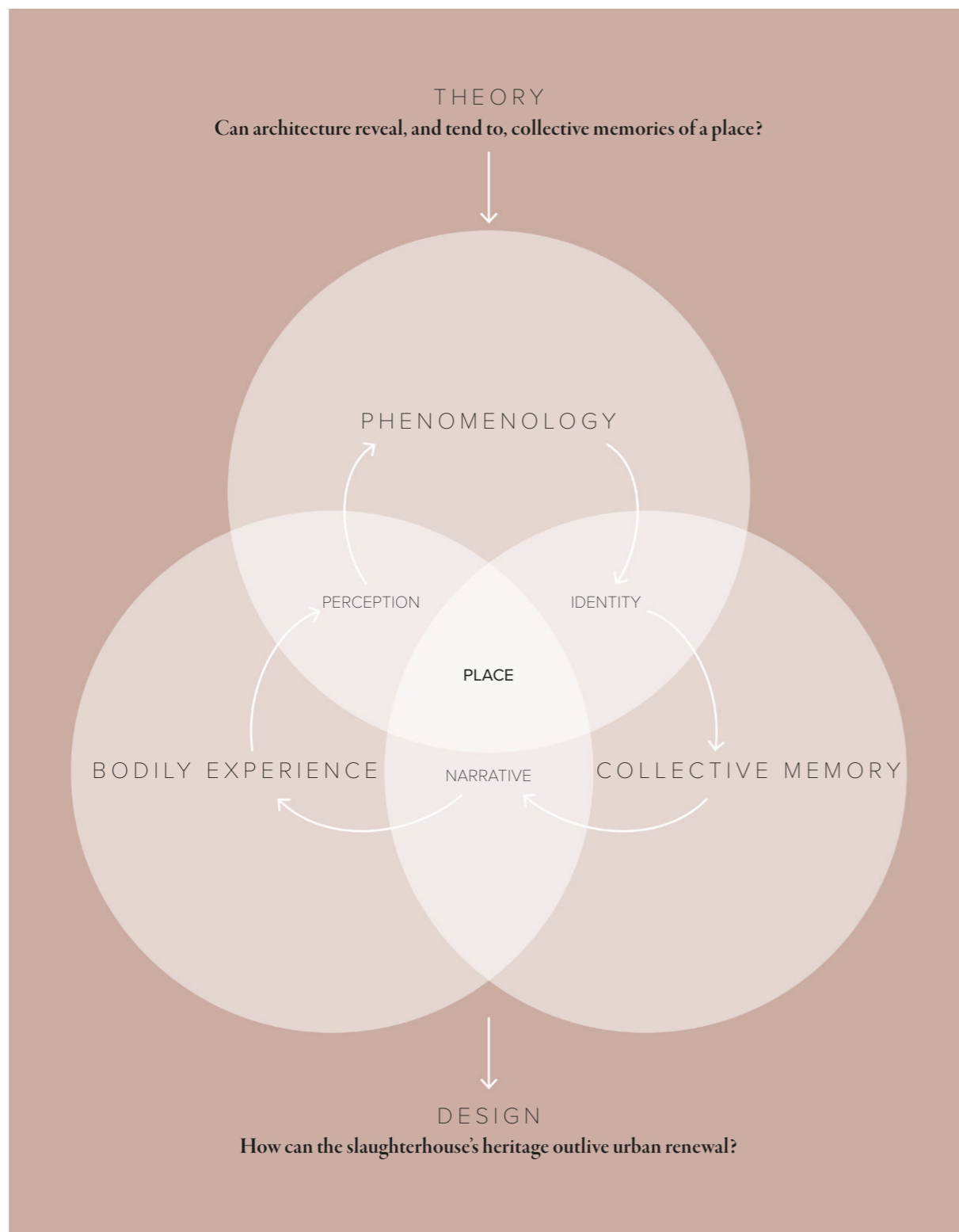
PROJECT

District
Gamelestad, meaning the old town, is a district in north Gothenburg that is characterised as a labours' district with numerous old industries.

Site
The slaughterhouse (Slakthuset) is a cluster of brick buildings in Gamelestad, designed by the architect Otto Dymling and built in 1905.

Building
The calf butchery (Kakslakten) is one of the buildings at the slaughterhouse, and the transformation object for this thesis.

T H E O R Y



Mind map of theoretical research

FIELD OF DISCOURSE

Trans-disciplinary studies in phenomenology, philosophy, and architectural theory are used as means to explore the thesis question whether architecture can reveal, and tend to, collective memories of a place. The theoretical research is general, thus not site specific for the slaughterhouse. The intention is to distinguish the meaning of heritage and its connection to architecture, and to investigate if bodily experience can trigger remembrance and belonging. To do so, the study is divided in six parts described below.

PHENOMENOLOGY

Point of departure is phenomenology, which is a philosophical theory and method that define the relation between subject and object. That is, between the human being and its surrounding environment.

IDENTITY OF A PLACE

The phenomenological background leads to distinguishing qualitative relations between subject and object, such as belonging, community, and identity. Values that make us care about the place that provide this.

COLLECTIVE MEMORY

The identity of a place is embodied through collective memories. These shared memories, as opposed to history, reveal narratives and empower heritage in a community.

NARRATIVE OF A PLACE

Both collective and personal memories are fixed in space. This implies that buildings and environments can contain memories and narratives, but also trigger remembrance for encounters.

BODILY EXPERIENCE

One ought to engage with a building or environment in order to take part of its narrative and memory. And to physically get in touch boosts the bodily and sensory perception of space.

PERCEPTION OF A PLACE

Architecture in itself might not be able to communicate a memory. Nevertheless, architectural elements can awaken curiosity for the narrative of the place by encouraging bodily contact and contributing to increased awareness of space.

PHENOMENOLOGY

Phenomenology is the study of objects as phenomenon, that is, how objects appear. And in order for an object to appear, there ought to be a receiver – a human being that encounters and experiences the object. The basic idea is that there is a relation between subject and object.

Applying phenomenological principles is a tool to gain understanding of how human beings relate to the world. The philosophical theory has its roots in the 18th century and has evolved into a movement with several directions. Throughout the years, phenomenology has become a vital part of social and humanistic sciences (Fenomenologi, n. d.). It is considered a movement since it often is used as a method to investigate meaning and qualities, in contrast to causes and quantities. What is crucial is that these studies depart from the object, without assumptions and prejudices. However, the object is never detached or isolated, but always strongly interlinked with the subject (Bengtsson, 1994).

Regarding architecture, phenomenology is relevant since it contributes to an understanding of place, but also of one's spatial presence. In short, the relation between the human body and its surroundings. This is essential since it raises the question of how space is perceived, experienced, and lived. It implies that architecture has influence on its visitors, which gives the architect responsibility to shape space for human activity and a sense of belonging.

Christian Norberg-Schulz, former Professor at Oslo School of Architecture and Design, was perhaps the foremost architectural theorist that concretised and applied these ideas to architecture through his theory in the phenomenology of place. His studies aimed to determine the essence and spirit of a place, as well as its existential meaning for those who inhabit it. According to Norberg-Schulz, one's identity is tied to a context, in conformity with the phenomenological relation between object and subject. He further discussed how drastic changes in the built environment can cause "loss of place", which appears as loss of identity or detachment from history. Hence, Norberg-Schulz theories indicate that architecture ought to preserve the spirit of the place as means to improve connectedness and prevent a feeling of alienation among its inhabitants (Bengtsson, 1994).

Phenomenology is a qualitative research method that aims to capture and describe the world as we perceive it. This involves our everyday life, memories, and expectations for the future, and focus is on what we perceive as meaningful.

IDENTITY OF A PLACE

"Without places, human life could not take place, and architecture simply means the creation of meaningful places, in the concrete, phenomenological sense of the world."
– Christian Norberg-Schulz (1988, p. 16).

According to Christian Norberg-Schulz, to belong to a place is vital for human beings, since belonging gives us meaning. The importance of a place is hence subjective to the inhabitant or user. Norberg-Schulz further stated that this connectedness to place is fading, causing alienation and a loss of identity. The reason is that we are taught to value quantities through measurements and classifications, and the result is careless inhabitants. What is meaningful, on the contrary, is based on qualitative values such as community and participation, which encourage care. What we need is a phenomenological revival, that reconnects people with their environment, creating awareness, care, and identity (Norberg-Schulz, 1988).

The question about the identity of a place was brought up by post-modernists as critique towards modernistic and monotone built environments. Norberg-Schulz claimed that modern architecture tends to be detached from its place, and that the international style has made separate places look the same. Consequently, places are robbed of their identity and its dwellers become strangers to themselves and their surroundings (Norberg-Schulz, 1988).

Juhani Pallasmaa, Professor of Architecture at Helsinki University of Technology, adds time as a key factor for the feeling of belonging and meaningfulness. Past, present, and future are all current in our everyday lives, and the understanding of our role in history is vital for our feeling of participation in this larger context. Pallasmaa states that architecture enables this and that buildings are placeholders for history, memory, and identity. Architecture creates understanding for passing of time and cultural changes (2012).

"We have a mental need to grasp that we are rooted in the continuity of time, and in the man-made world it is the task of architecture to facilitate this experience."
– Juhani Pallasmaa (2012, p. 35).

The significance of a place depends on its specific culture and collective memory, which is what shapes identity and enables participation and belonging. These are all social aspects, but they are anchored in environments, whether these are natural or built environments.

COLLECTIVE MEMORY

Most of our memories are shared by others. These memories take place in social contexts and are anchored in time and space. Memories, knowledge, and experiences that are shared by a group of people are known as collective memories. These are continual and social; they are passed on between generations and they outline the identity of a group (large and small groups alike). In addition, collective memories are the framework for our personal memories. And in contrast to nostalgia, collective remembering is the active and dynamic act of recalling memories, which ties the past with the present and future (Roediger and Wertsch, 2008).

Whereas history is an accurate representation of past events, collective remembering is a reconstruction of our understanding of the past. These two relations with the past are connected, yet different from each other. History tells the objective perspective whilst collective remembering reveals the subjective narrative. The former provides facts and the latter enables understanding and a feeling of connectedness to history (Roediger and Wertsch, 2008).

To further define the term collective memory, its similarities and dissimilarities to heritage should be mentioned. In short, collective memory is a representation of heritage. According to Dr Dacia Viejo-Rose, Department of Archaeology and Anthropology at University of Cambridge, heritage is the “remains of past creations” whereas collective memory is the “remains of past experiences”. Heritage would be nothing but old objects if collective memories did not empower it with meaning, for memory adds narrative and the dimension of continuity of time. In return, collective memory depend on heritage as a container and communicator of the memory. This mutuality indicates that heritage is a collection of memory that enables remembrance, and together, they shape identity and our perception of it (Viejo-Rose, 2015).

Course of time increases the reasons to remember but decreases the ability to do so. Memories are fragile and elusive. Each time we think of a memory it is reimagined; slightly altered and distorted (Bachelard, 2014). Memories can change and they can lie. It is easy to forget, and it is this forgetfulness that makes us want to remember. And as stated by the well-known art critic John Ruskin, we need architecture to remember (2001). This statement is further confirmed by the philosopher Gaston Bachelard; the stronger a memory is tied to a place, the more likely it is that it will be remembered (2014).

NARRATIVE OF A PLACE

“Architecture can be a powerful springboard to our personal and collective pasts. What we bring to architecture is our bodily experience, intellectual history and emotive sensibilities; but also, it cannot be denied, our imagination.”
– Shelley Hornstein (2011, p. 48).

Personal as well as collective memories are fixed in space; they are always taking place somewhere. Thus, memories are connected to environment and matter, and architecture can hold these recollections. The built environment can be a reminder of our past and origin that keeps memories relevant. Remembrance links the past with the present and keeps memories alive, according to Shelley Hornstein, Professor of Architectural History at York University (2011). This relation between the past and present, and even future, is what turns mere nostalgia into significance and development.

Architecture, especially the older building stock, is one example of materialised heritage. Buildings are valuable since they contain memories and narratives. Therefore, as further discussed by Hornstein, it is relevant to question whether architectural preservation entails, or enables, the safeguarding of memory. And if so, would that imply that the memory is lost if the building is demolished? (2011). Even if this questioning might be a simplification of the matter, it is worth considering. Regardless, the existing building stock deserve attention and care, for memories and narratives provide meaning.

It is one thing to grasp that memories take place in spatial frameworks, and that environments and buildings can capsule memories. But it would be problematic to claim that these memories are communicated to visitors of a place. Eleni Bastéa, Professor of Architecture at University of New Mexico, argues that visitors are not necessarily fed with the memories of a place simply by being there. In order to unfold and reveal memories, awareness and compassion are required. Visitors must seek to discover and take part of the narrative, and there ought to be a will to interpret the memory (Bastéa, 2004).

Likewise, Viejo-Rose states that experience is prior to remembrance, and she further declares that we experience through our senses (2015). One way to uncover the memory and narrative of a place is to physically get in touch with it and increase awareness through bodily and sensory experience. In accordance to Viejo-Rose, Pallasmaa states that “we remember through our bodies” (2012, p. 49).

BODILY EXPERIENCE

We perceive the world through the body and senses. Bodily experience is the physical presence that the human body feels through tactile contact with its surroundings. Sensory experience, on the other hand, is the translation of this physical contact into what is perceived by the senses: sight, hearing, touch, scent, and taste.

Even without consideration, we constantly utilize our bodies. The body is what relates us to the world; the body is what we live through. Yet, in everyday life, most of us are unaware of our bodily presence. Nevertheless, it is easy to shift focus towards the body, and once we do so, we become aware of posture, position, and the materials one's body is in contact with. The consciousness and relation to the body is debated amongst phenomenologists and philosophers. One of them is Frédérique de Vignemont, Research Director at Institut Jean Nicod, who has studied bodily awareness. According to de Vignemont, the perception of the body differs from the perception of objects since the body is perceived both from the outside and from within, due to the senses (de Vignemont, 2018).

Pallasmaa's book *The Eyes of the Skin* is a praise to our senses, with observations similar to those of de Vignemont. Pallasmaa discusses how sight, hearing, touch, scent, and taste affect us and why architects ought to take all senses into account whilst shaping our surroundings. He states that the world is vision-centred today, and that we often rely on our eyes to experience environments, cities, and buildings. But as indicated by Pallasmaa, vision-centred architecture is for the bodiless observer; detached and at distance. It is by touching, and getting close to, architecture that we connect with it (Pallasmaa, 2012).

Similarly, de Vignemont identifies action as key to bodily experience and awareness. Which she refers to the recognised phenomenologist Maurice Merleau-Ponty, who has influenced many within the phenomenological discourse throughout the years (de Vignemont, 2018).

Architecture needs to be encountered to be experienced and perceived. Visitors arrive, come close, meet, pass through, stop, relate to, and are present in the building. Bodily and sensory experience of architecture, beyond what is simply visual, makes us understand and connect to the physical built environment. Architecture can encourage action and movement, and it can slow down the spatial experience to increase what is sensed. By paying attention and being aware, our bodies help us connect and remember (Pallasmaa, 2012).

PERCEPTION OF A PLACE

"I experience myself in the city, and the city exists through my embodied experience. The city and my body supplement and define each other: I dwell in the city and the city dwells in me."
– Juhani Pallasmaa (2012, p. 43).

Experiencing and understanding a place is about paying attention and being aware. There is a great difference in looking and seeing; in hearing and listening; in touching and feeling. Space is experienced through activity, action, and movement that take place in the spatial framework.

The philosopher Gaston Bachelard, former Professor at Sorbonne University, emphasised attention and involvement with the environment in his book *The Poetics of Space*. He resembled awareness with a magnifying glass that enables us to view our surroundings through the curious eyes of a child (2014). We are taught to look but not touch, but there are architectural examples that defy this code of conduct and encourage bodily contact with the built environment. Japanese architecture, and not the least Japanese gardens, are examples of this brought up by both Bachelard and Pallasmaa. This is further emphasised in the two Japanese classics *In Praise of Shadows* by Junichiro Tanizaki (1977) and *The Book of Tea* by Kakuzo Okakura (2016). Japanese architecture and gardens regularly trigger bodily and sensory perception, as well as memory and imagination. The visitor is often led along a certain path that provides movement and places to stop, but also notions and hidden viewpoints that encourage imagination (Bachelard, 2014). Two examples of this are Ryoanji and Heian Shrine Garden, both located in Kyoto, Japan. *View Appendix VI for reference projects.*

BOTTOM LINE

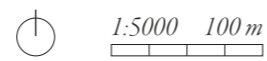
In conclusion, the aim with the theoretical research was to study whether architecture can reveal, and tend to, collective memories of a place, based on phenomenology, philosophy, and architectural theory. The research shows that heritage and collective memories are anchored in space and that architecture can contain these intangible values. But as stated by Bastéa, architecture by itself might not be able to communicate the memory of a place to its visitors (2004). Nevertheless, architectural aspects and elements can awaken curiosity for its narrative by encouraging bodily contact and contributing to increased awareness. Hence, the perception of a place all goes back to the phenomenological standpoint that there is a relation between human being and environment. By designing for bodily and sensory experience, the bond between subject and object can be strengthened and a sense of belonging can be achieved.

CONTEXT

ROOTS



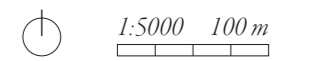
Gamlestaden, Gothenburg



CONTEXT



Gamlestaden, Gothenburg



DISTRICT

Gamlestad is an industrial district, a city within the city, and a junction that lies along the northbound tram, just about 10 minutes from Gothenburg city centre. Even though this distance equals the distance from the central station to the area Guldheden – Gamlestad is deemed as far away whereas Guldheden is considered as close.

The junction is rather a paradox, being both the requisite and the challenge of Gamlestad. It was a node before it became a district; a place where vital roads assemble. This crossroads was key to the prehistoric town Nya Lödöse in 1473 (Atlestam, Caldenby, Tislius, 1993) as well as to the newly built public transport hub Gamlestads Torg. As result, much of Gamlestad has been dominated by traffic since cars entered the townscape in the 1960's (Atlestam et. al., 1993). But at least, all roads lead to Gamlestad.

However, there is more to Gamlestad than infrastructure. And its name, meaning 'the old town', is one indication of its many layers of time. It is characterised as a former labours' district with countless brick factories that used to produce anything from cotton and sugar to ball bearing. Gamlestad exemplifies the flourishing growth of industrialism, but also its reversion. Today, most industries have shut down and Gamlestad has hence lost a piece of its identity (Atlestam et. al., 1993).

History is very much alive though, and the city has high hopes for future Gamlestad, with plans to transform the area into something new. Much has happened already, for instance the fast exploitation at Gamlestads Torg and the slightly slower development at Gamlestads Fabriker. According to the comprehensive plan for Gothenburg, Gamlestad is one of five strategic nodes in the city that will be developed and densified to gather functions and people at lively spots. However, it is also stated that new construction shall be in consideration with the existing, and not the least, cultural-historical values (Stadsbyggnadskontoret, 2009).

The term *node* might simply be a finer word for *junction*. Hence, that piece of Gamlestad's identity seems to be safeguarded for the future. Infrastructure has been a top question in city planning for long. However, this thesis intends to shift focus to the cultural-historical.

SITE

On opposite side of the rail from the public transport hub Gamlestads Torg, one can catch sight of the slaughterhouse. Most people might not notice it, distracted by hurrying commuters, and dazzled by the brand-new urban neighbourhood on site. But for the attentive one, a tower and a tall chimney draw attention to the cluster of brick buildings from 1905.

The site is easy to reach yet detached and enclosed from its surroundings. But once there, the slaughterhouse is something completely different compared to the busy junction and large-scale urban development that encircle it. The streetscape is suddenly at a human scale, built before motoring transformed our cities. Further, genuine materiality and care for detailing add characteristics to the area. Gothenburg's slaughterhouse, by the architect Otto Dymling, was the second of its kind in Sweden. Its purpose was to secure hygiene within the food industry as means to improve public health (Lärn, Nyborg, Sandesjö, 1955). The slaughterhouse was initially surrounded by agricultural lands, but nowadays, it is encircled by a junction. Besides being a historical area, it faces ongoing and future development.

Despite countless renovations and additions from 1905 until today, one can still sense the rational original plan (Atlestam et. al., 1993). Initially, there was a logistic flow from west to east. Farmers arrived to the west part of the area and sold their animals in the market halls, the animals were taken to the slaughtering halls in the centre of the site, and lastly to the cold storage and meat packing factories to the east, according to Bo Bengtsson, former worker at the slaughterhouse (personal communication, January 30, 2020). *A timeline of the site is presented on p. 28.*

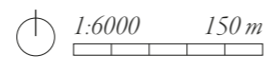
It has been a while since the area operated as slaughterhouse, some buildings are empty whereas others have been revived with new purposes. There are also a few meat packing factories that have remained at the slaughterhouse. The majority of the buildings are owned by the municipal real estate concern Higab, and a development plan for the area is in progress. In future, the former slaughterhouse will be transformed into a culinary and cultural centre for a diverse audience. The planning process is lengthy though, and the area needs action now to prevent decay. Hence, both a short-term and a long-term plan is formed, according to Kajsa Wide at Higab (personal communication, November 15, 2019).

View Appendix I for photographs of the area and Appendix II for full site analysis with subsequent objectives and strategies, as foundation for the design concept.

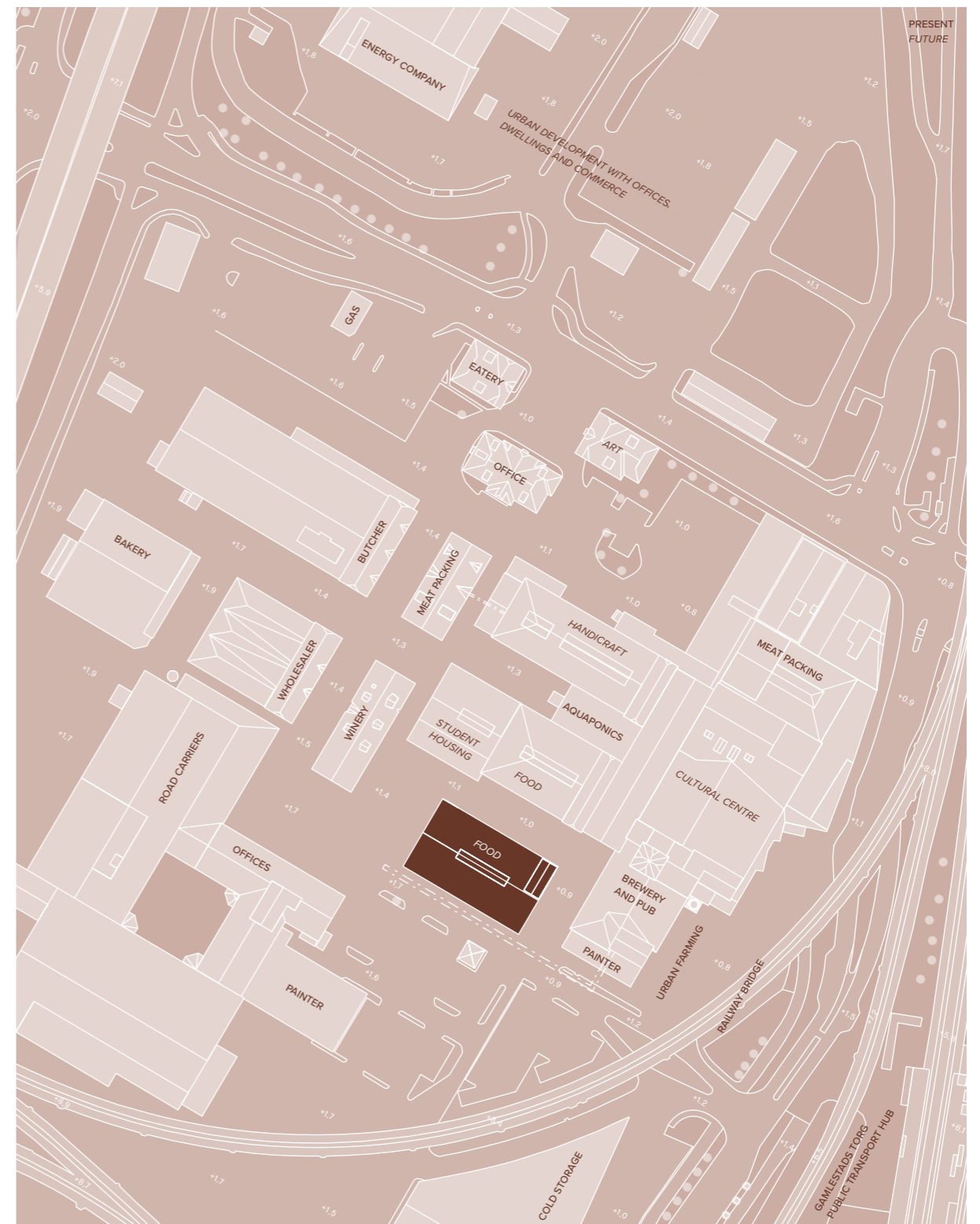
ROOTS



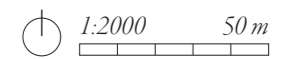
Timeline of the slaughterhouse according to blueprints from the city planning office



CONTEXT



Site plan of the slaughterhouse, with plans according to the property owner and the comprehensive plan





The calf butchery, January 2020

BUILDING

A solitaire in a cluster; connected yet detached. The old calf butchery is a free-standing brick building from 1912. It is a few years younger than the initial slaughterhouse, but designed by the same architect, Otto Dymling.

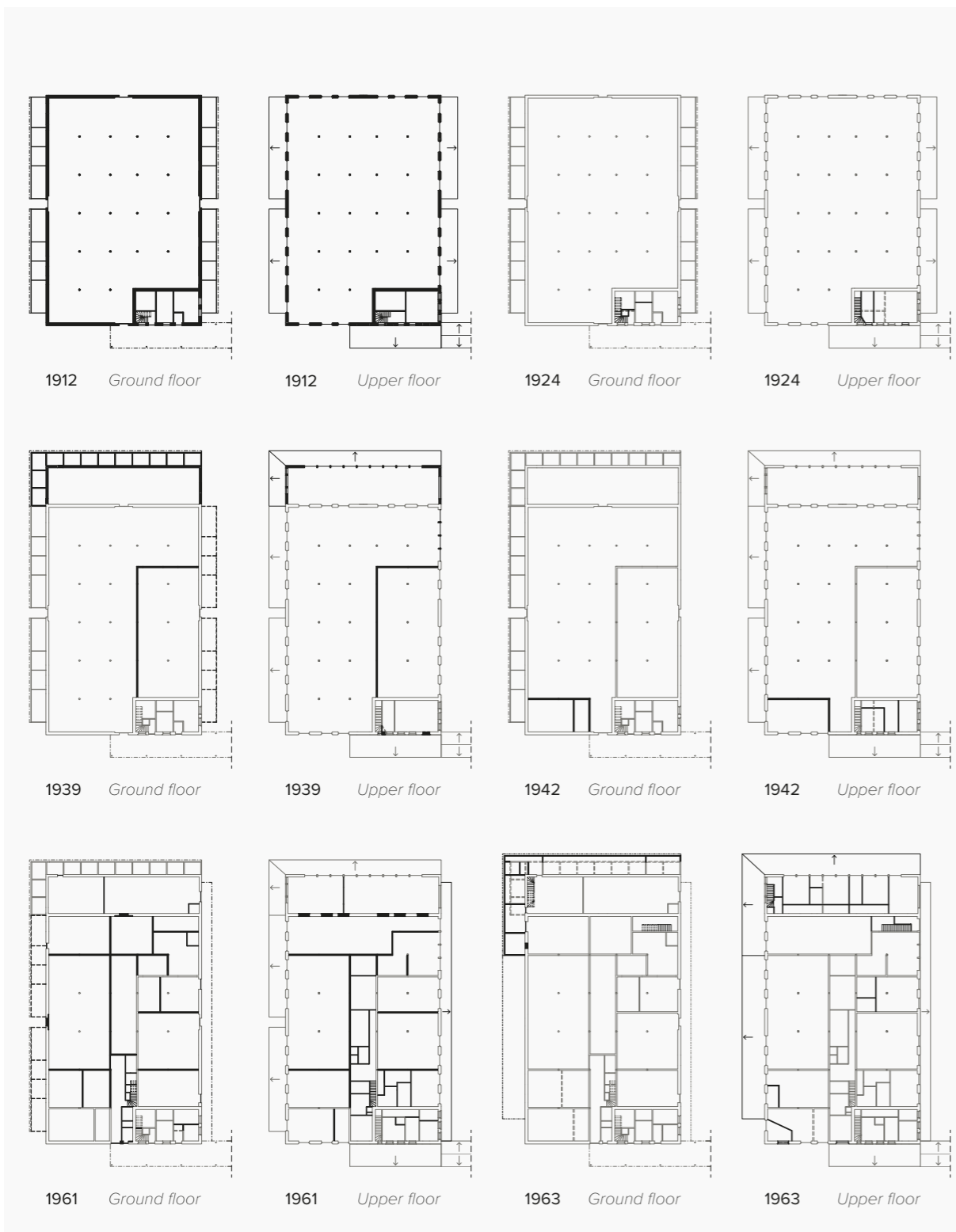
Blueprints reveal that initially, the building consisted of one large room, a slaughter hall with high ceilings and a core of smaller rooms for staff in the southeast corner. A rational and spacious floor plan in other words. The calf butchery was further connected to its neighbouring building with a canopy, presumably for easier access to the cold storage. But time and changes in operation altered the building multiple times. What used to be a slaughter hall later became a butchery and meat packing factory. It has been a transition from open space to a maze of rooms, added one by one. When the calf butchery got a cold storage of its own, the building grew independent from its neighbours and the canopy was removed. *A timeline of the building is presented on pp. 32-33.*

Layers of adaptations reshaped the calf butchery, and the once rational building became cluttered with more or less temporary additions. Many of these were of poor quality, and damp left its mark. Consequently, the interior additions were recently demolished, and the calf butchery was once again transitioned and reset into open space. Free-standing and empty, the calf butchery awaits a new purpose. The interior is a blank piece of paper, but the facades are witnesses of the many changes that were made to the building. Its windows are a tale of adaptation, evidence of changes and history.

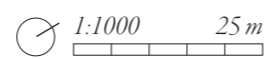
According to the architect, the slaughterhouse is constructed by high-quality materials that cope with the rough weather conditions on site. Its facades are conducted in rohbau style, with burnt bricks from Skromberga in southern Sweden, and bases and openings are dressed in shockproof granite. The facades, together with a few structural interior walls, and cast-iron columns carry the loads and the roof, which has a small tilt and is covered in roofing felt. The original entrances were placed along a central axis and had sliding doors of wood and iron with American door mountings. The windows were of wrought iron and had a single glass but have been replaced by wooden frames and a double glass. Interiorly, the walls were initially covered with glazed tiles to a height of about two metres and plastered overhead. Which still can be seen on some of the walls. Traces of the building's function as a slaughter hall can be found, for instance, the rails for hanging and relocating the animals are preserved (Dymling, 1905).

View Appendix I for additional photographs of the building

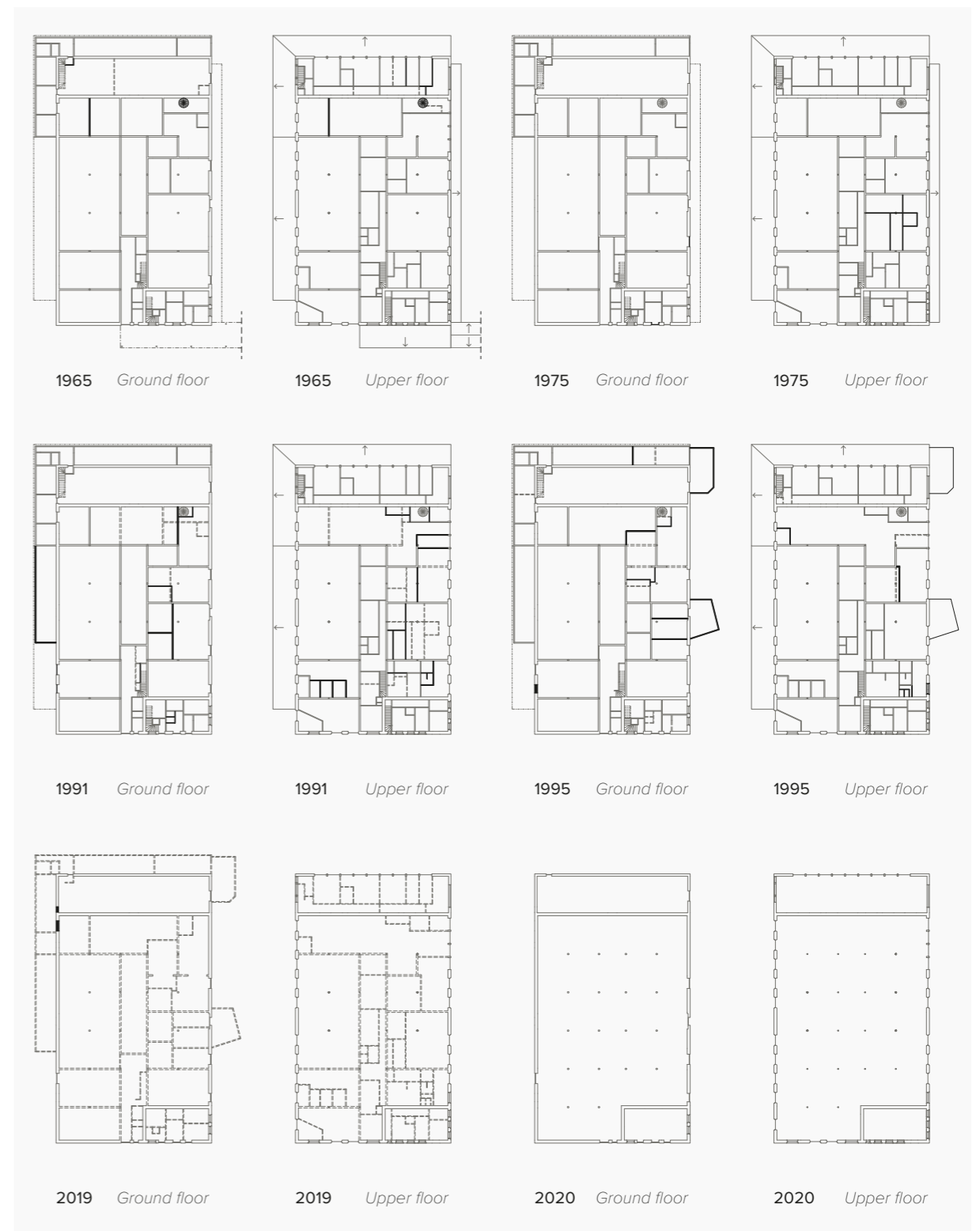
ROOTS



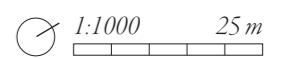
Timeline of the calf butchery according to blueprints from the city planning office



CONTEXT



Timeline of the calf butchery according to blueprints from the city planning office





Bo Bengtsson next to the calf butchery, January 2020

BO BENGTSSON

"It was a friend of mine, John, who worked at a meat packing factory here. I was running errands for a clothing enterprise at the time. 'You should not deliver coats to ladies,' he said, 'you need a proper job'. So, he brought me here and I applied for a job and I got it. Later, I came home and said, 'I got a job at K. A. Lundgren.' 'What is that?' my mother asked. I answered, 'it is a company at the slaughterhouse.' I heard humming from the kitchen, 'the boy will work at the slaughterhouse.' She was horrified. It was not the best job one could get. The slaughterhouse, it even sounds a bit harsh."

The year was 1944 and Bo Bengtsson was merely 14 years old. Initially, he worked as an errand boy, but he steadily climbed the career ladder, grew fond of the slaughterhouse, and chose to stay until 1983. Bo and his colleagues John Calvin and Taylor Holmén stay in touch and meet up every now and then to keep memories alive. Throughout the years, they have gathered artefacts from the slaughterhouse, pieces of history that are displayed in one of the buildings on site today, like a small museum.

"The three of us have a bit of knowledge each. Or, not just a bit, we have a lot of knowledge. But we are the only ones left who know anything, actually."

From errand boy to purchasing manager, Bo has worked at most departments at the slaughterhouse. He has sorted intestines, cleansed animals' skin, picked up leftover food from restaurants that fed the pigs, done meat packing, been a vet assistant and a butcherer, delivered goods to clients, handled exports to Austria and Germany, and worked as salesman and consultant. The 14-year-old boy thought the business was uneasy at first, but he got accustomed to it. Cleansing animals' skin was the worst task since the smell did not wash away from his hands.

Despite the roughness, all workers were kind and supportive, even the sturdy slaughterers. Truth is, they often spent time together off hours. Bo is keen to describe the benefits of working at the slaughterhouse back in the days. There used to be a tennis court and allotments available for the workers, where they could grow potatoes and vegetables to bring back home to their families. And there was a garden with fruit trees that blossomed during spring and bore delicious pears. Today, there are parking lots all over the place, says Bo (personal communication, January 30, 2020).

Segments from an interview with Bo Bengtsson, previous slaughterhouse worker. Thursday, January 30, 2020. Translated by Rebecka Bolt.

AUGUST FORSGREN

"It is astonishing that Bo has been in these rooms and worked with something different. I hope that I too, when I am older, can come and visit and say, 'we had a taproom here and over there stood a piano'. To be able to recognise oneself. That is, if the building will remain for that long, but since it has been here for a hundred years, I guess it can survive a hundred more. [...] Spoken history ought to remain."

August Forsgren works at Spike Brewery in the old slaughterhouse. Since 2016, beer has been brewed and enjoyed where there used to be a boiler-room and meat packing factory. Now, a taproom is open for visitors on Saturdays, located in the heart of the brewery, amidst vessels, canning machines, and brewers. Bringing consumers close to the production is important. They have noticed that their costumers long to have a look and see where their beer is brewed. It creates a connection to locality, which August deems to be more and more vital.

The brewery has a rough but easy-going impression, but the business has outgrown its facilities and needs more space. The neighbouring calf butchery is of interest, and conveniently it is both empty and spacious. They want to hold on to the roughness since it has become a trademark for Spike Brewery. Moreover, they see potential in the area. According to August, the slaughterhouse's strength is its preserved historical layers in combination with the accessibility, whereas the challenge is to attract visitors. The area is still relatively unknown, but a group of businesses on site have become partners that collaborate and strengthen one another. Visitors at one place is advertisement for the entire area, and together they have arranged events and developed new products. The brewery has for example: blended beer and wine into a new beverage in collaboration with the winery, produced bier banger (sausage with hops) with a meat packing factory, flavoured beer in partnership with a distributor of spices, and they are curious about using herbs from the urban farming in their production.

Regarding the future, August believes that the area should develop around this community. But he states that the slaughterhouse needs a theme that gathers the actors around specific values and ideals. That would transform the separate businesses into a united front with a collective aim. In fact, grassroot initiators have already begun shaping a theme for the slaughterhouse, namely sustainability (A. Forsgren, personal communication, February 6, 2020).

Segments from an interview with August Forsgren, Spike Brewery. Thursday, February 6, 2020. Translated by Rebecka Bolt.

NIKLAS WENNBERG

"In order to run a cultivation here, one needs a business model that is based on selling pedagogy. And in addition, food and an experience are sold. The result is potential for events. We cannot make a living out of selling fish and greens."

The urban farming company Stadsjord begun to include pigs in urban contexts in 2009. The idea was to make use of unutilised space and to raise awareness of farming among city dwellers. It was a success; people adored the pigs, and soon, they could cultivate the grubbed soil. In 2014, Stadsjord settled in the slaughterhouse and expanded their business idea with aquaponics (fish farming). In addition, they have implemented hydroponic farming, that is, vegetables and herbs grown in water instead of soil. Their yield is sold to exclusive restaurants and a few fish markets, but also to the public sector and directly to consumers through the growing phenomena "Reko-ringen" that enables buyers to purchase goods from producers without intermediators.

Niklas Wennberg, founder of Stadsjord, states that they search for more than just premises, or space where they can run their business; they want a context. Rather than merely being a tenant, their aim is to be a cooperation partner to the property owner as well as neighbouring companies and initiators. For instance, Stadsjord's aim is to start producing their own feed for the fish. This can be made of waste, such as vegetables from the urban farming and hops from the brewery, which would conduce further collaborations within the area.

Stadsjord is establishing and has won design awards for their innovative ideas, but many of the grassroot initiatives have not been realised. Thus, they have developed a new design concept, using shipping containers as small hubs where food can be produced anywhere in the city. The project was requested by the municipality and is called Göteborgsmat. The first container module is planned to be placed on opposite side of the road from the slaughterhouse, but Niklas hopes it can be placed where their facilities are instead. Stadsjord is temporary moving to their business partner Garveriet in Floda, because of the bad condition of the slaughterhouse premises. But they wish to be upraised in new looks at the very same spot. Infrastructure, such as water, is already available, and above all, they have a context at the slaughterhouse (N. Wennberg, personal communication, February 11, 2020).

Segments from an interview with Niklas Wennberg, Stadsjord. Tuesday, February 11, 2020. Translated by Rebecka Bolt.

JOHANNA, LOUISE & REBECCA

"People often walk by and ask us why they do not know more about this place."

Johanna Braaf, Louise Broo, and Rebecca Hallqvist are the founders of Slaktarens Trädgård, an urban farming association at the slaughterhouse. They are three designers at a consultant company that share the same interest in cultivation. The idea to establish a non-profit farming association was born during a lunch meeting with a client - and when they heard that the slaughterhouse's property owner sought commercial farmers for the area, they applied.

Since 2019, they have been growing vegetables and herbs as a hobby at a small lot at the slaughterhouse. Their intention is to sell greens, but also to spread knowledge and curiosity about urban farming to visitors and costumers. The business model is as simplified as possible to remain the small scale, thus, costumers themselves harvest the greens that they wish to purchase. Consequently, consumers become part of the production chain, and the business is narrowed to a leisure-time activity for Johanna, Louise, and Rebecca.

Slaktarens Trädgård lies at the southeast edge of the slaughterhouse and it is the first business that visitors notice when arriving to the site from Gamlestads Torg. Hence, it has become a sort of reception for the entire area. Johanna, Louise, and Rebecca are often encountered by curious by-passers that ask for directions or want more information about the site. They have noticed that the slaughterhouse still is fairly unknown, and that despite its beneficial closeness to the public transport hub, it is slightly detached and not as public as they thought it would be. Nevertheless, they stress that the strength of the area lies in its potential. A bunch of innovative businesses have already established, but more is needed, according to Johanna, Louise, and Rebecca. The public attractions are seldom open and there are too few people passing through, and staying in, the area. Apart from businesses, the area needs places that generates a sense of permission to spend time there. The slaughterhouse needs to become inviting. A mix of young businesses that are open to the public and partly commercial. Room for non-profit organisations and businesses with varying prerequisites. More eateries with differing pricing and opening hours, such as place for a café, after work, restaurant, and market hall. Attractions that welcome a diverse audience throughout the day. That is what is needed, according to the three founders of Slaktarens Trädgård.

Segments from a video interview with Johanna Braaf, Louise Broo, and Rebecca Hallqvist, Slaktarens Trädgård. Friday, March 20, 2020. Translated by Rebecka Bolt.

GLENN NORDFELDT

"If it is possible to preserve historic values, I believe everybody would benefit from it. Upholding culture is important for human beings. But in order to enable development of an area like this, one needs to be able to make a living of it. Or else, it is not enough. There has to be another purpose as well."

Jakobsdals Charkuteri is a meat packing factory that started as a small butcher's shop in Haga in 1936. The company expanded, bought a supplier, outgrew several premises, and moved around in Gothenburg until they settled at the slaughterhouse in 1982. Glenn Nordfeldt is the CEO of Jakobsdals Charkuteri and he describes the company as a family business that focuses on handmade meat products based on Swedish traditions, but with influences from the world.

Glenn emphasises the importance of a common thread within the business; a line of argument that tells a story and strengthens the credibility of the products. Local collaboration is one example of this. Jakobsdals Charkuteri purchases machines and spices from the wholesaler Profood, and they develop new products together with Korvdelikatssen, another meat packing factory on site. They are also curious about collaborating with Wine Mechanics, and possibly Spike Brewery, in future. Another example is their cooperation with Gothenburg's city mission. Jakobsdals' excess production or slightly defect products are donated, which minimise waste and prolongs the company's intention to be a reliable employer with long-term goals.

They are one of few living traces of the meat industry that remain at the slaughterhouse. But it is only a matter of time until Jakobsdals will need to find new grounds. Glenn states that they gladly would have stayed and perhaps opened a small shop as means to be part of the future, public plans for the area. But their vision is for the company to continue growing, and it is not possible for them to expand within the slaughterhouse. Besides, they need modern facilities. According to Glenn, the buildings are old and neglected, and it will be costly to transform them. In addition, if rents increase too much, it is the smaller businesses that will be affected. He claims that the area has potential though, with its great location and communication. And if the streets within the area were closed off to traffic, a lively marketplace could evolve, indoors as well as outdoors (G. Nordfeldt, personal communication, February 11, 2020).

Segments from an interview with Glenn Nordfeldt, Jakobsdals Charkuteri. Tuesday, February 11, 2020. Translated by Rebecka Bolt.



Figure 2. Air Photo of the Slaughterhouse (Ahl, 2020). Reprinted with permission.

VALUATION

The theoretical research on phenomenology, collective memory, and bodily experience is used as point of departure to define the slaughterhouse's heritage and to distinguish why it is worth preserving. *Field of discourse is presented on p. 15.*

PHENOMENOLOGY

By looking at the slaughterhouse as a phenomenon, one can sense the investments and efforts made when it was built in 1905. Nevertheless, additions and adaptations indicate that, in later years, function has been considered more valuable than appearance. These layers of time may appear as cluttered, but even so, they have a story to tell about the attitude to the building and its heritage. The site has a rough expression with hard surfaces, locked doors, and even a harsh name, the slaughterhouse. However, the streetscape is of human scale in contrast to the busy and infrastructural surroundings. And the kinship seen in the cluster of brick buildings communicates that these industrial buildings belong here. They are surrounded by brand new urban development, but the slaughterhouse is where identity can be found.

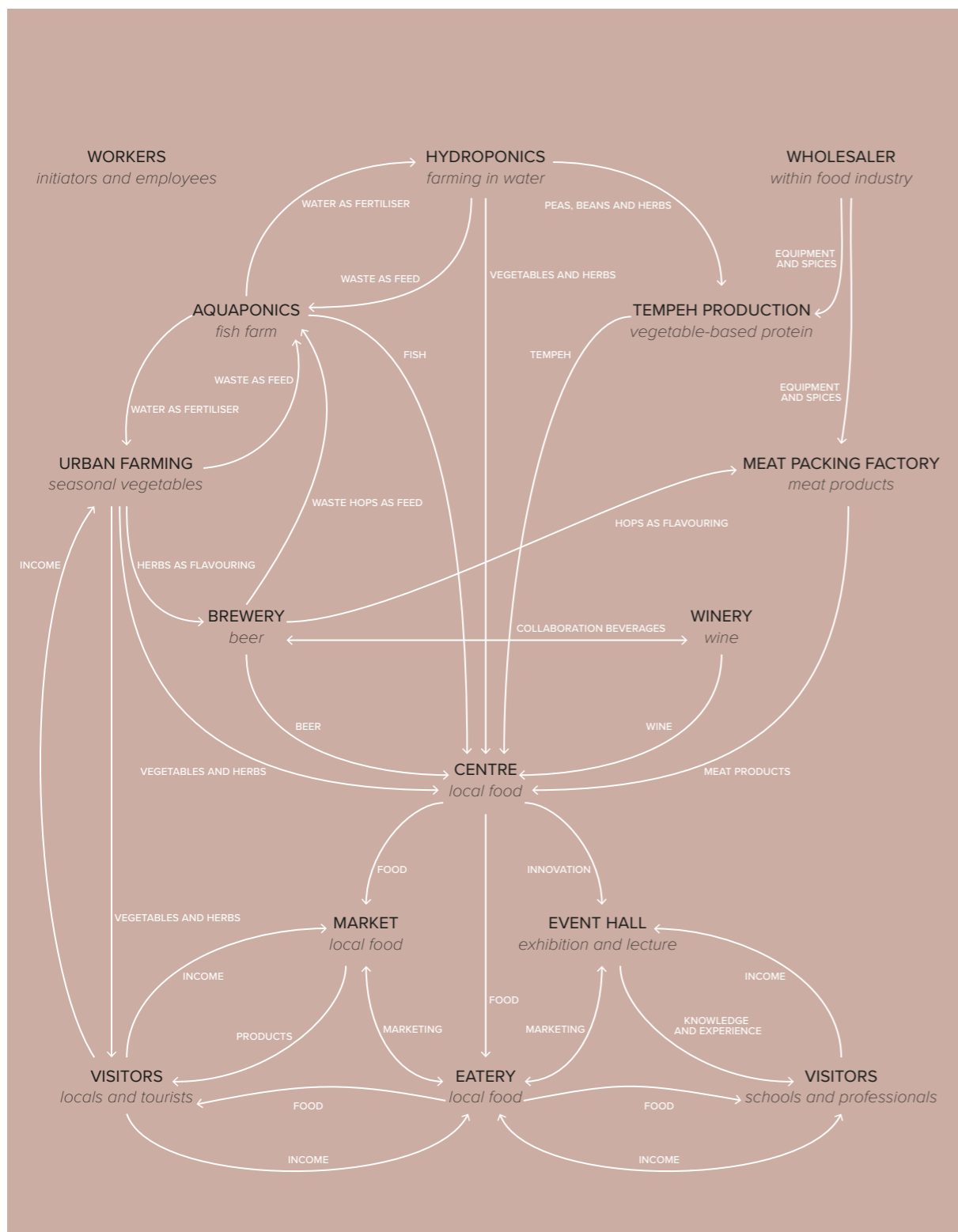
COLLECTIVE MEMORY

The collective memory and narrative of the slaughterhouse reaches deeper than the physical buildings. Bo Bengtsson speaks of a sense of community and belonging that was always present at the slaughterhouse when he worked there. Correspondingly, present stakeholders and businesses on site indicate that they long for that spirit. Hence, a reconnection to these shared memories and values is within reach for the slaughterhouse's future development.

BODILY EXPERIENCE

To reveal above mentioned values, the first step ought to be to apply a new, public function to the slaughterhouse that enables people to take part of its narrative. Hence, it is also vital that this function is rooted in the slaughterhouse's collective memory, such as the public food theme that the property owners have in mind. Further, food enhances the bodily and sensory experience of the place and can be used as means to communicate the memory of the slaughterhouse to its visitors and workers. By doing so, remembrance will be meaningful and not simply nostalgic. And the slaughterhouse can be perceived by, and important to, a wide range of people.

D E S I G N



Speculative organisation map of stakeholders and businesses on site

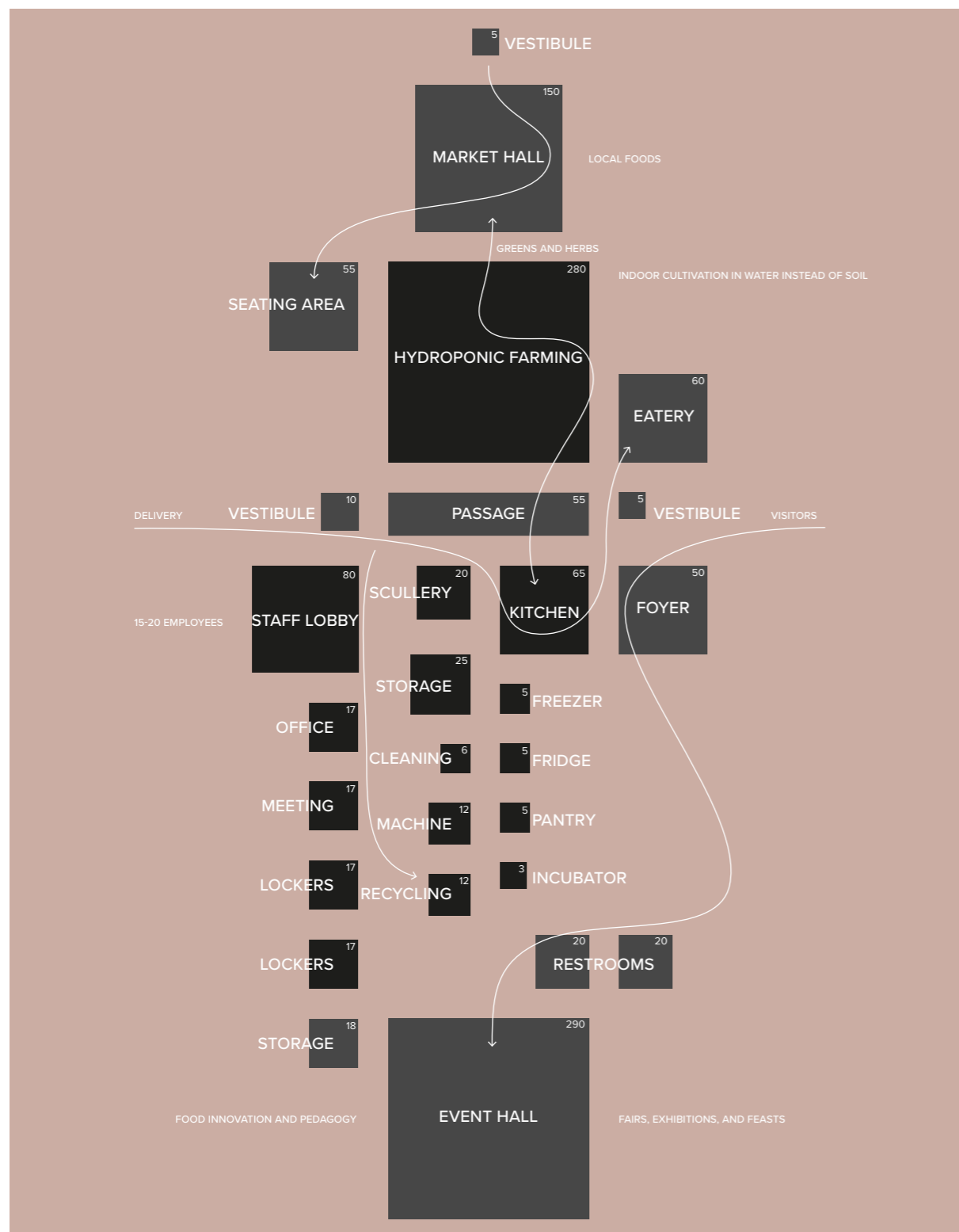
VISION

Forecasting the future is a difficult task. Nevertheless, it is tempting to predict a probable future based on circumstances and trends. These days, it is easy to foresee a collapse due to climate change, population growth and urbanisation. But by looking at possibilities rather than probabilities, one can suddenly imagine desirable futures. These futures are neither fiction nor fantasy, but simply achievable ideals (Dunne and Ravy, 2013).

What if the slaughterhouse became a place where heritage can adapt, yet thrive? If so, it could take part in a transforming urban fabric. Human beings have a need to understand their anchoring in time and space, a notion that architecture can enable (Pallasmaa, 1996). *View Identity of a Place*, p. 17. The slaughterhouse has a story to tell, it is a reminder of our roots, and it keeps our heritage alive. It is also available space, ready to assist the growing city. And by reusing it, resources are spared. It is stated in IPCC's fourth assessment report that reuse of the existing building stock is essential for the building sector to lower their emissions (2014).

The slaughterhouse was a pioneer within the food industry when it was founded in 1905. Each building was a piece in a system, and hence interrelated. To establish a municipal slaughterhouse was innovative at the time, and it affected all of Gothenburg's inhabitants (Lärn et. al., 1955). Today, the slaughterhouse can take the lead and be of service to the city once again. Imagine a circular, closed loop food system, where all actors share a common goal and play a vital role in a larger context. *View interviews*, pp. 35-39. This allows the slaughterhouse to have a dialogue with its past, at the same time as it escorts the food industry to a sustainable future. Moreover, by applying more plant-based food production, it proves that if the slaughterhouse can go green, then who cannot? As stated by IPCC, plant-based foods are the sustainable option, but also the healthy option. It has lower environmental impact, which is shown in decreased greenhouse gas emissions and reduced usage of energy, land, and water. Further environmental improvements are achieved by enhancing locally produced food. Local consumption means minimised transportation and hence less processing and packaging, which contributes to decreased waste and increased food security. Consequently, production should occur where food is consumed, that is where there are people. The majority of the world's population lives in urban areas, yet only a fraction of food production takes place in cities. Thus, urban farming can be a driver in the adaptation towards sustainable food production (IPCC, 2019).

So, what if the slaughterhouse told a story about heritage as well as development?



Programme, area, and flow

PROGRAMME

The proposal of a new programme for the calf butchery is one piece in the vision and organisation map presented on pp. 44-45.

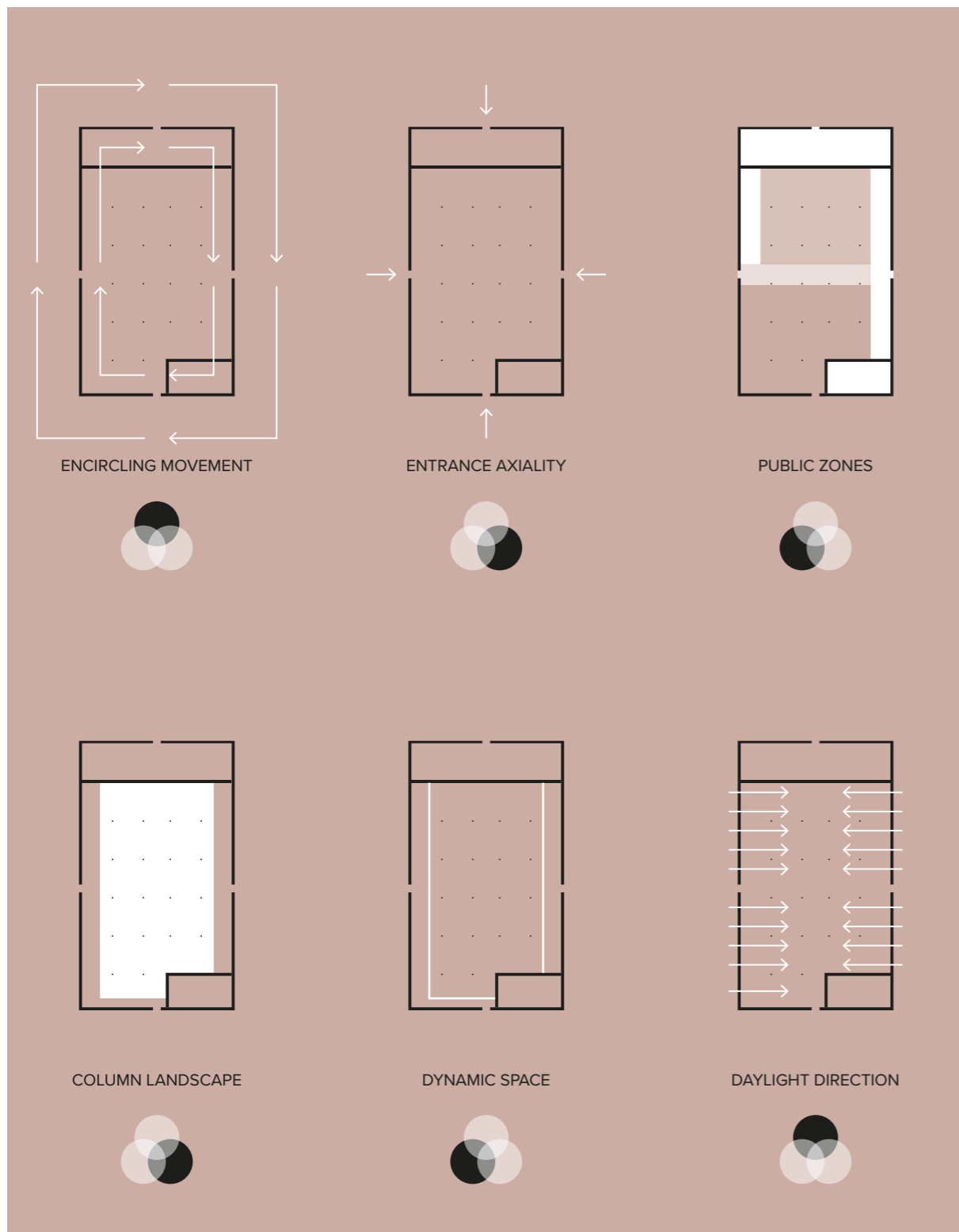
The old calf butchery is an empty and free-standing brick building that is centrally located at the slaughterhouse. In this thesis, it is transformed into a local and sustainable food centre that is open to the public. A circular process including farming and food production allows the building to have a dialogue with its industrial past, but more sustainable foods bring the calf butchery to the future. Its new programme mainly consists of hydroponic farming of peas and greens, production of tempeh, and a public eatery, market hall, and event hall.

Tempeh is a vegetable source of protein, usually made of fermented soybeans. However, Swedish peas and other leguminous plants work as good, and these can be grown on site hydroponically. Hydroponic farming is basically crops grown in water instead of soil – a cultivation method that is suitable for urban farming due to the fact that it is space and time efficient. And since there is already a fish farm (aquaponics) at the slaughterhouse, these two businesses can cooperate and benefit from each. *View organisation map, p. 44.*

The finished product is served at the eatery and sold in the market hall, all under the same roof. The market has an appertaining seating area where visitor can enjoy the local goods purchased at the market. In addition, an event hall enables exhibitions, fairs, lectures, feasts, and various events as means to improve pedagogy for sustainable, local, and innovative food production. *View interview with Niklas Wennberg, p. 37.*

The resulting programme for the building is a business model with several functions within a system. It creates new jobs and attracts visitors from the district and beyond. Inviting people to come close to this kind of local and sustainable food production is a tool to plant a seed, to spread the word, and to inspire others to join the transition towards a more sustainable future. And its relevance is strengthened by the building's history, proving that development is a part of the collective memory. The programme is also a tool to make people interact and engage with the building in various ways and by using all senses.

View Appendix III for further information about hydroponic farming and Appendix IV for information about tempeh.



Design concept

1:1000 25 m

CONCEPT

The design concept departs from the theoretical and context-based research and consists of six strategies presented below and illustrated to the left. Each strategy is connected to the theoretical themes; phenomenology, collective memory, and bodily experience, according to the mind map on page 14.

ENCIRCLING MOVEMENT

The first strategy derives from a phenomenological point of view and explores how the building appears. The freestanding calf butchery encourages visitors to move around its corners and perceive it from various angles. In the proposal, this is mirrored to the interior.

ENTRANCE AXIALITY

The second strategy is based on preserving the central axis that defines the placement of the entrances to the building. Each facade is activated to emphasise the movement and readability of the layout. This axiality has been blurred throughout the years but is now revived.

PUBLIC ZONES

The third strategy encourages contact. Space is experienced through activity and by adding public functions, visitors can engage with the building and take part of its narrative. In the proposal, public zones are neighbouring production areas.

COLUMN LANDSCAPE

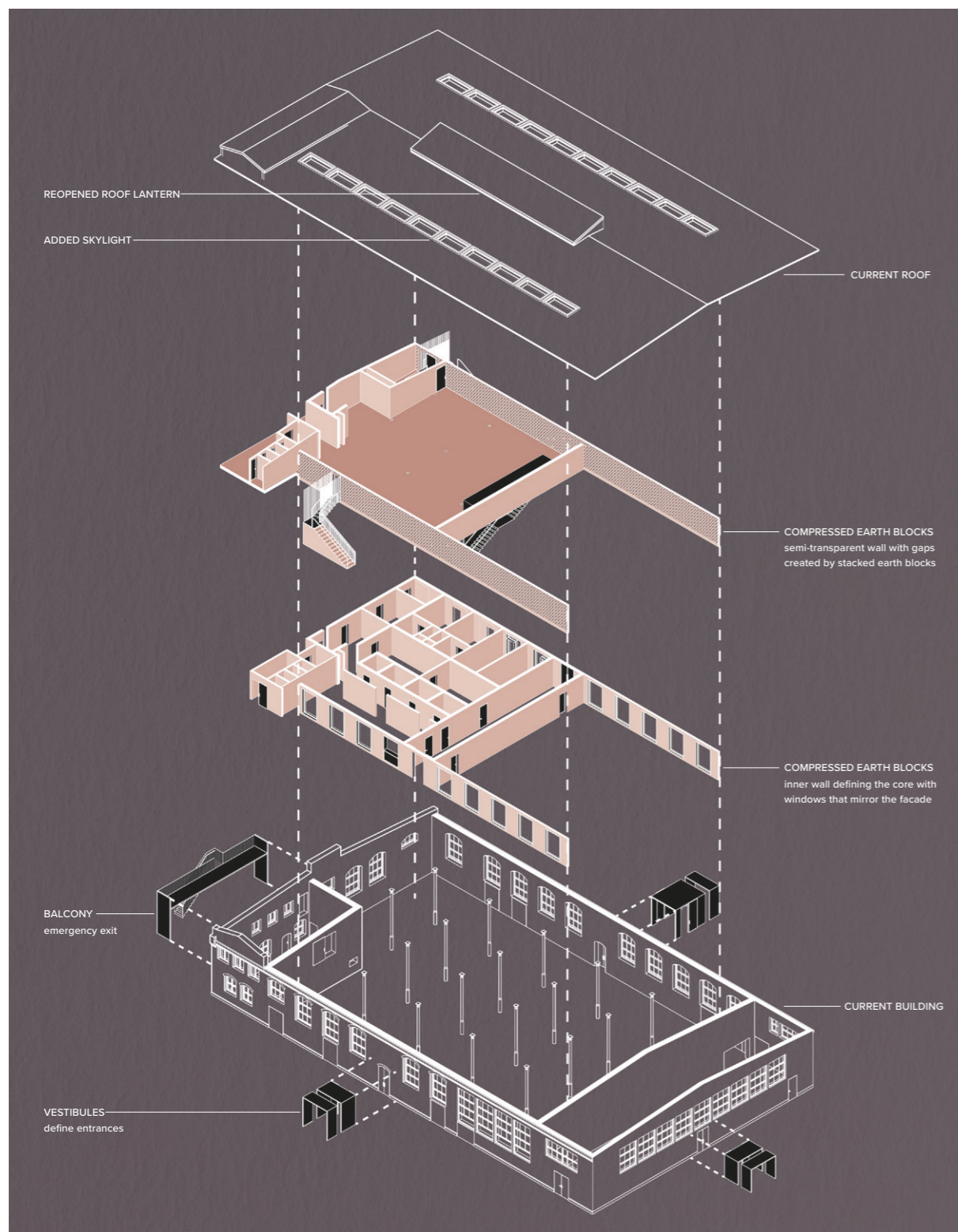
The fourth strategy assesses the identity of the loadbearing structure. In the design proposal, the landscape of columns is framed as means to preserve and enhance its character.

DYNAMIC SPACE

The fifth strategy enriches bodily experience. Both narrow and spacious rooms characterise the building. This dynamic enhances the intimacy of small rooms and the magnitude of large rooms and strengthens the experience of both.

DAYLIGHT DIRECTION

The sixth strategy enhances the windows' presence. A flood of daylight appears and is strengthened in the proposal with interior windows that follow the daylight direction and add viewpoints.



Exploded axonometric view of the calf butchery

DESIGN PROPOSAL

The project is a transformation of the calf butchery with compatible additions that intend to preserve the identity and narrative of the place. All additions, as well as removals, are grounded with reasons.

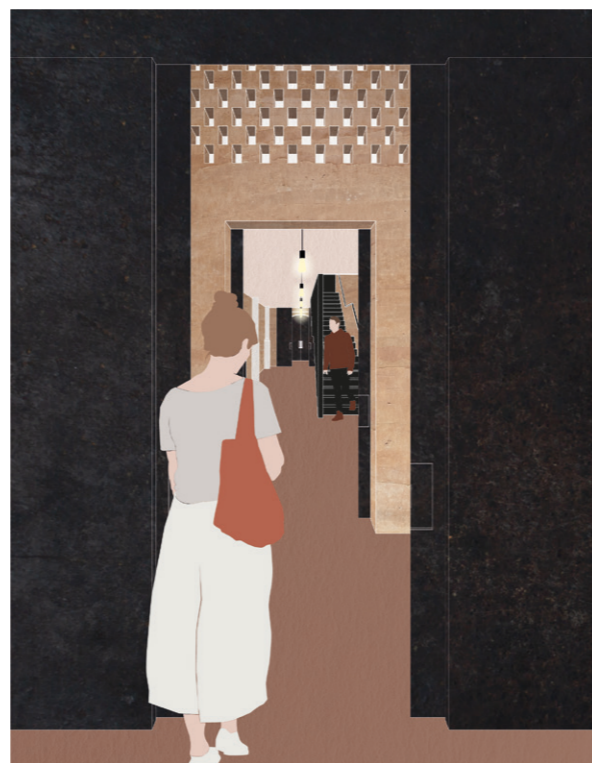
A transformation and revival of the calf butchery allows for innovation in relation to the existing. This enables the building to fulfil a new purpose whilst its identity and narrative remains. Thus, the design proposal is neither a conservation, restoration, nor renovation project. The reason for this should be mentioned. A conservation approach would mean to preserve and repair the existing with minimal impact on the original appearance, which makes it difficult to facilitate a new programme. Restoration implies a to return to a previous state or condition that is considered as desirable. This requires other layers of history to be obscured, which would erase a piece of the building's narrative. Lastly, renovation entails renewal that makes the old to look like new, which would put the memory of the building at risk.

Transformation gives room for careful changes and additions. These can either be matching, contrasting, or compatible with the existing. Matching additions correspond with what is already there, whereas contrasting additions differentiate from it, often in scale and materiality. The former prevents transparency of historical layers, and the latter takes distance from the existing. This project will aim for compatible design, also known as contextualism, with respect for existing scale, materiality, detailing, and surroundings. Additions are readable but blend with the existing to enable the calf butchery's heritage to be dynamic.

All additions are constructed in either rammed earth, steel, or leather, which is compatible with the bricks, loadbearing structure, and former function. Rammed earth is used for the main additions; the heavy and rooted elements such as walls, floors, and stairs. Lighter, supplementary elements are of steel, for instance, windows, railings, and furniture. And elements that one gets close to are dressed in leather; door handles, handrails, and seating to mention some.

The axonometry to the left illustrates the transformation proposal. The main addition is an inner core that facilitates the new production area, surrounded by public functions. An upper floor is added above half of the core, and lastly, vestibules frame the entrances on each facade.

View Appendix V for further information about rammed earth.

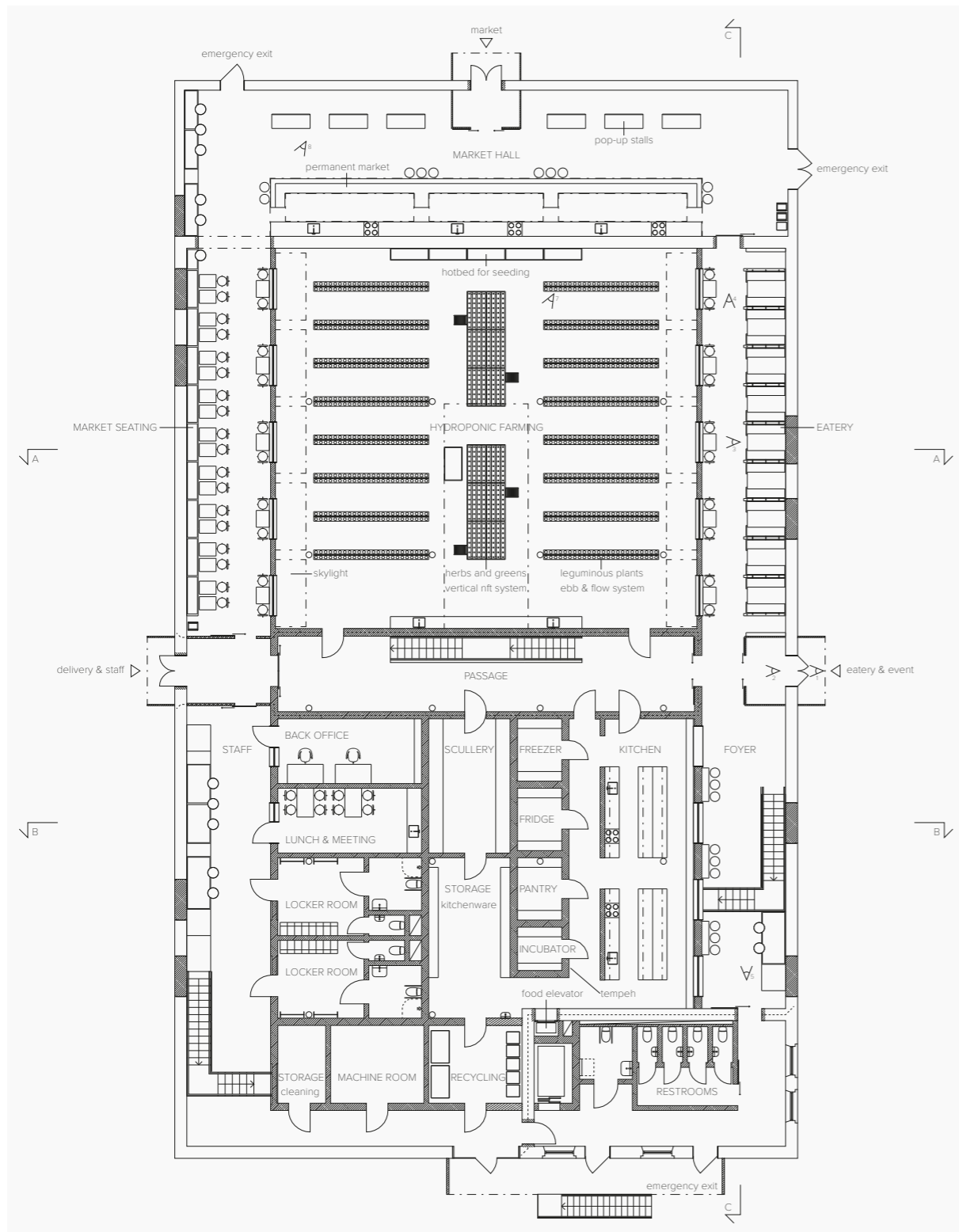


1: Door handle. 2: Vestibule and passage. 3: Window seat overlooking hydroponic farming 4: Eatery.



5: Stairs in foyer. 6: Event hall during an exhibition with transparent screens. 7: Hydroponic farming. 8: Market ball.

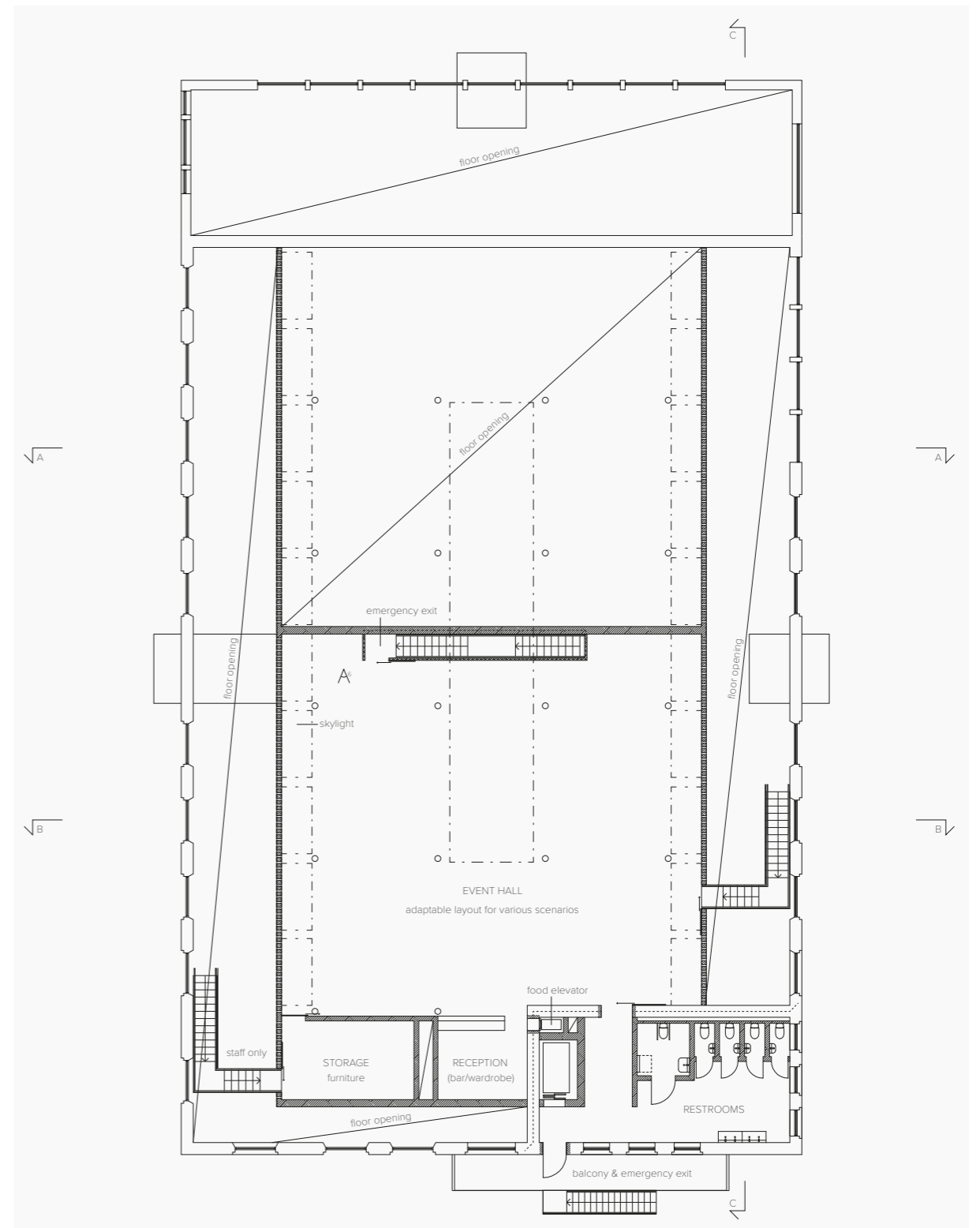
ROOTS



Ground floor

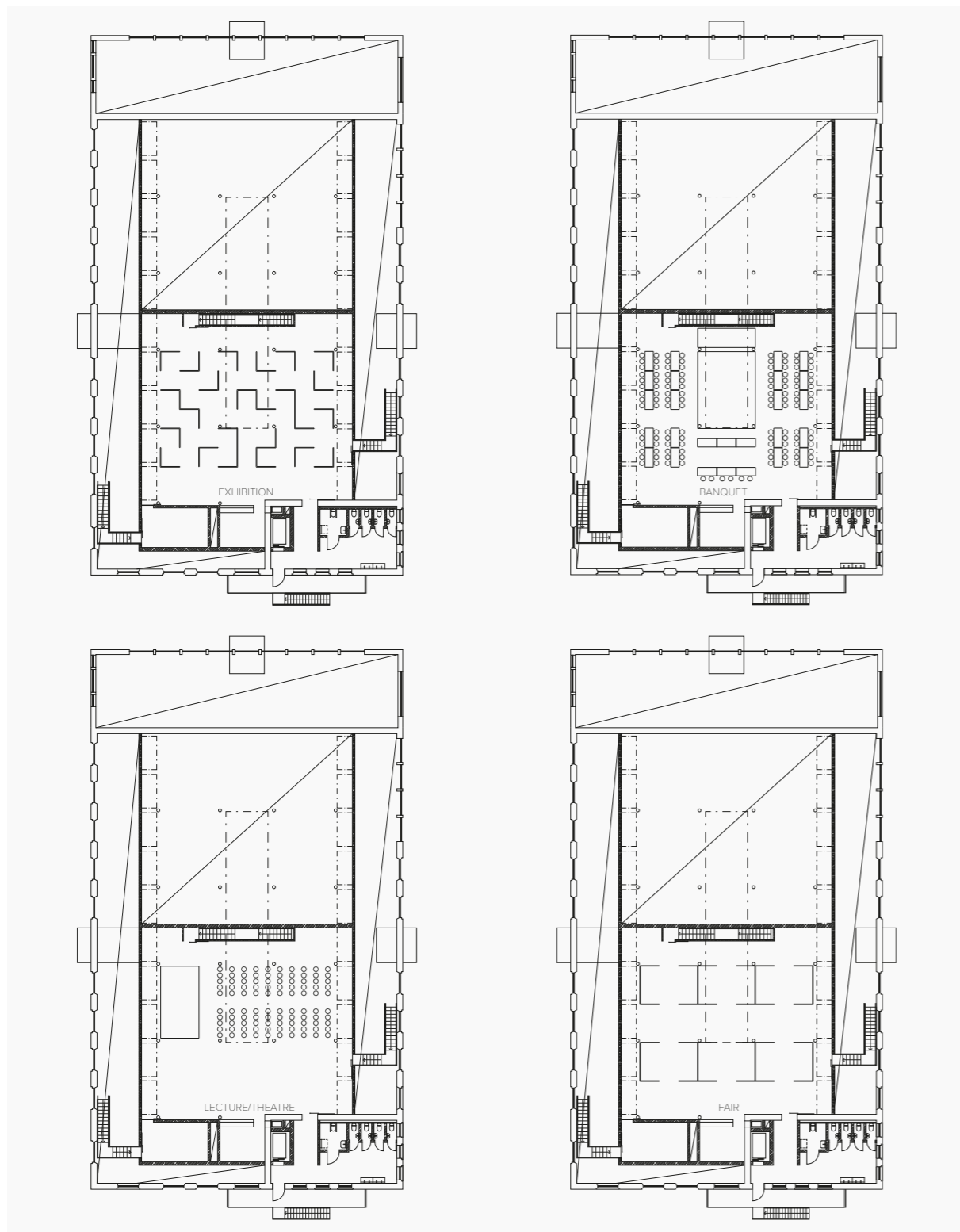
1:250 5m

DESIGN



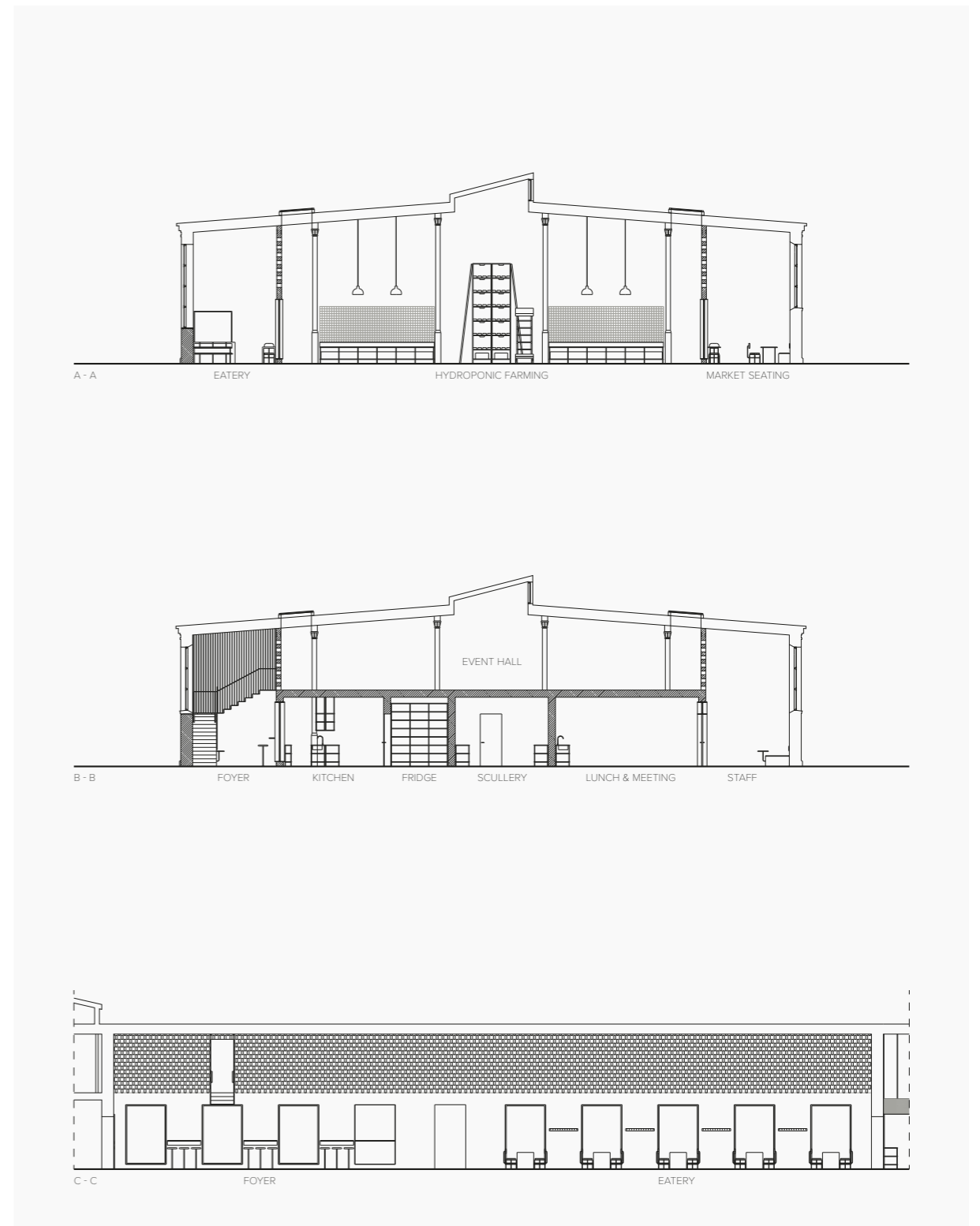
Upper floor

1:250 5m



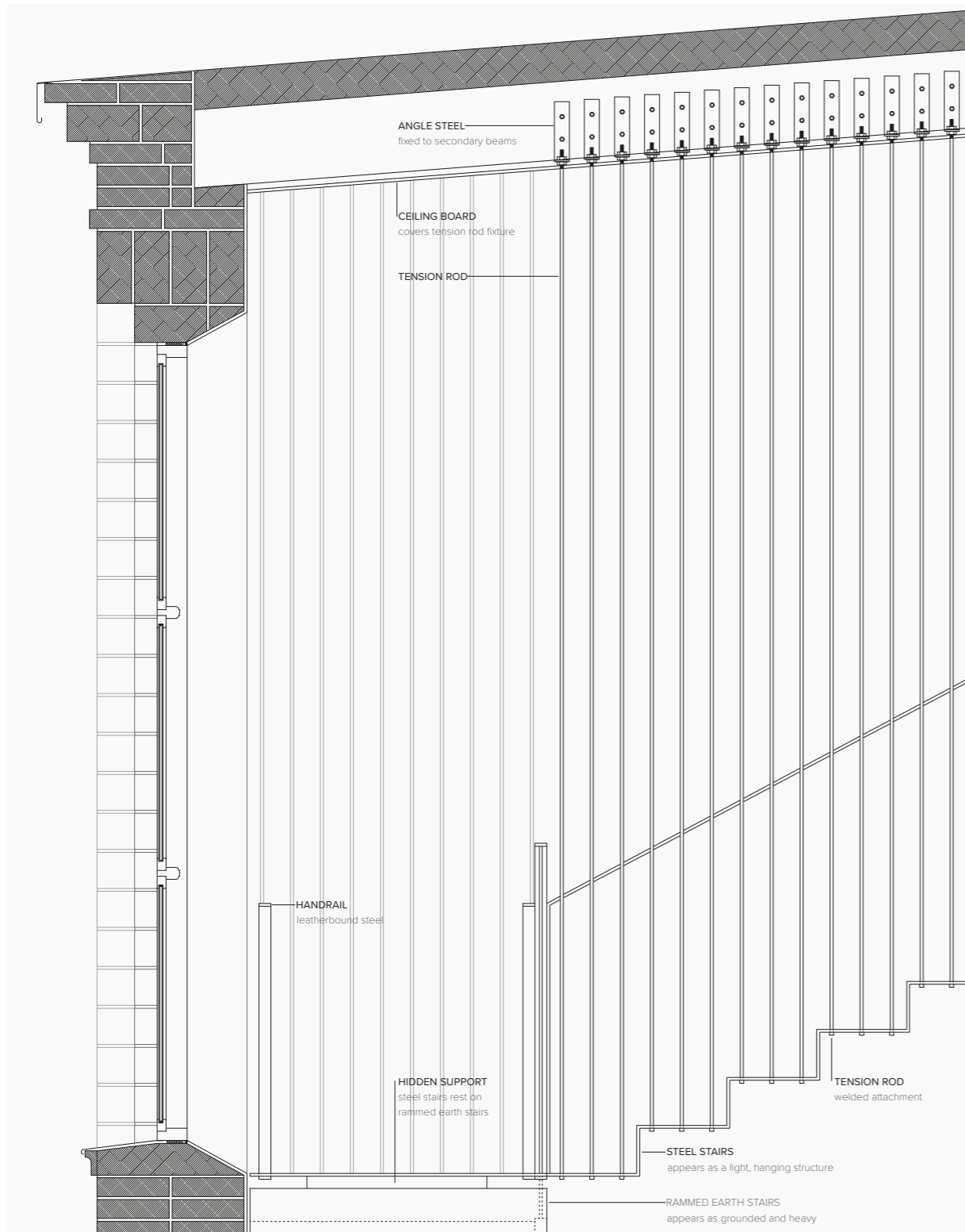
Event scenarios for the upper floor

1:500 10 m



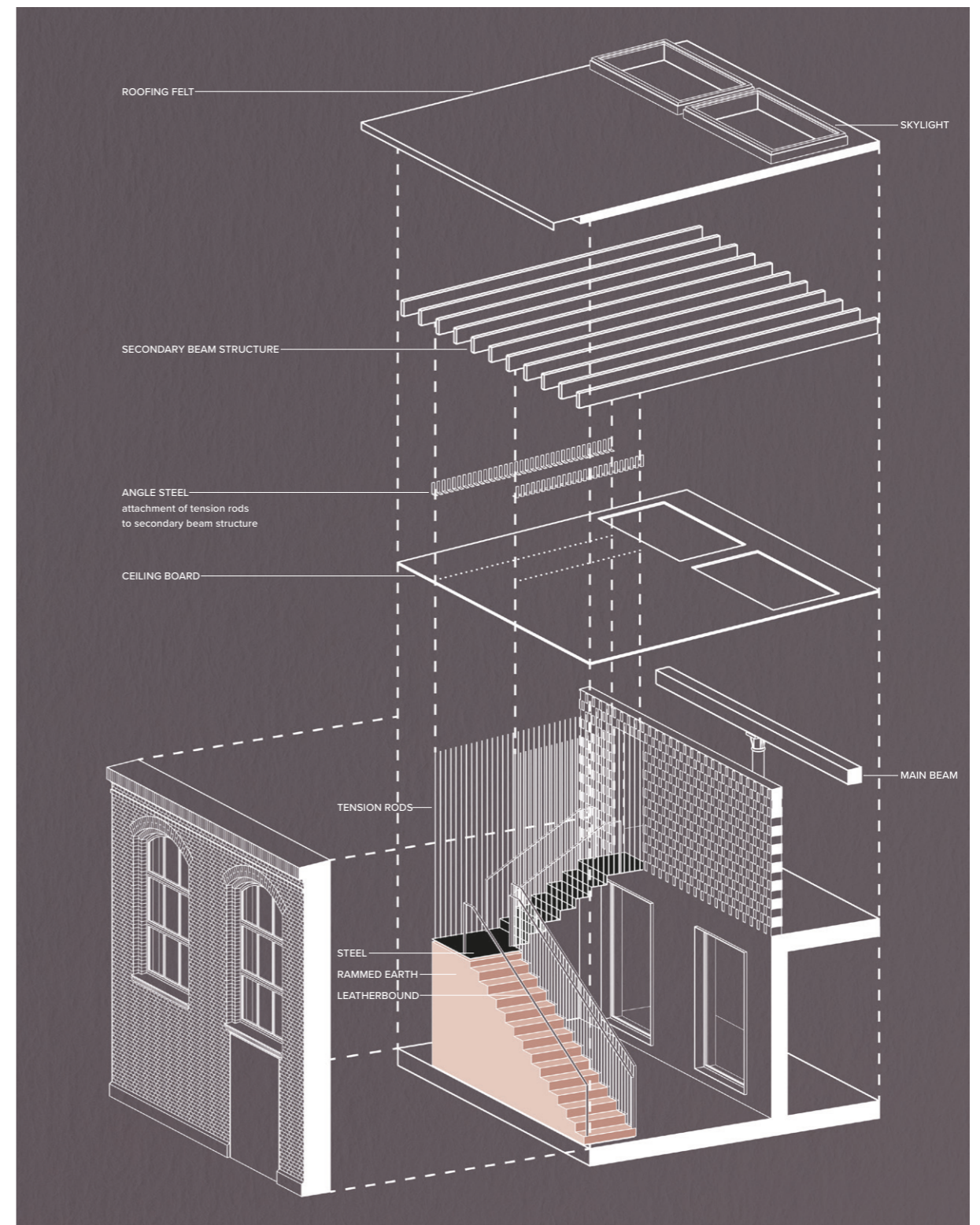
Sections

1:250 5 m

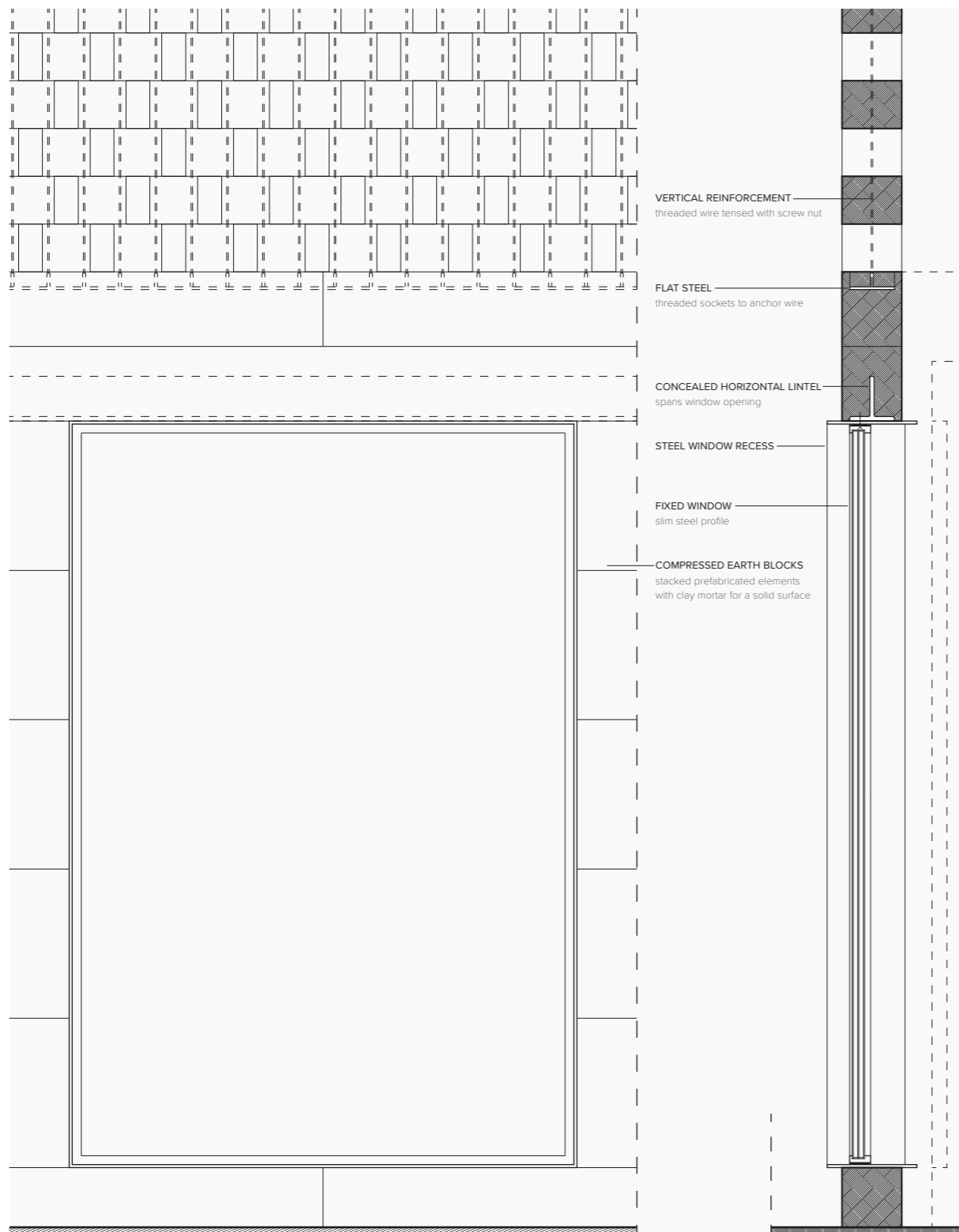


Section of staircase

1:20 0,5 m

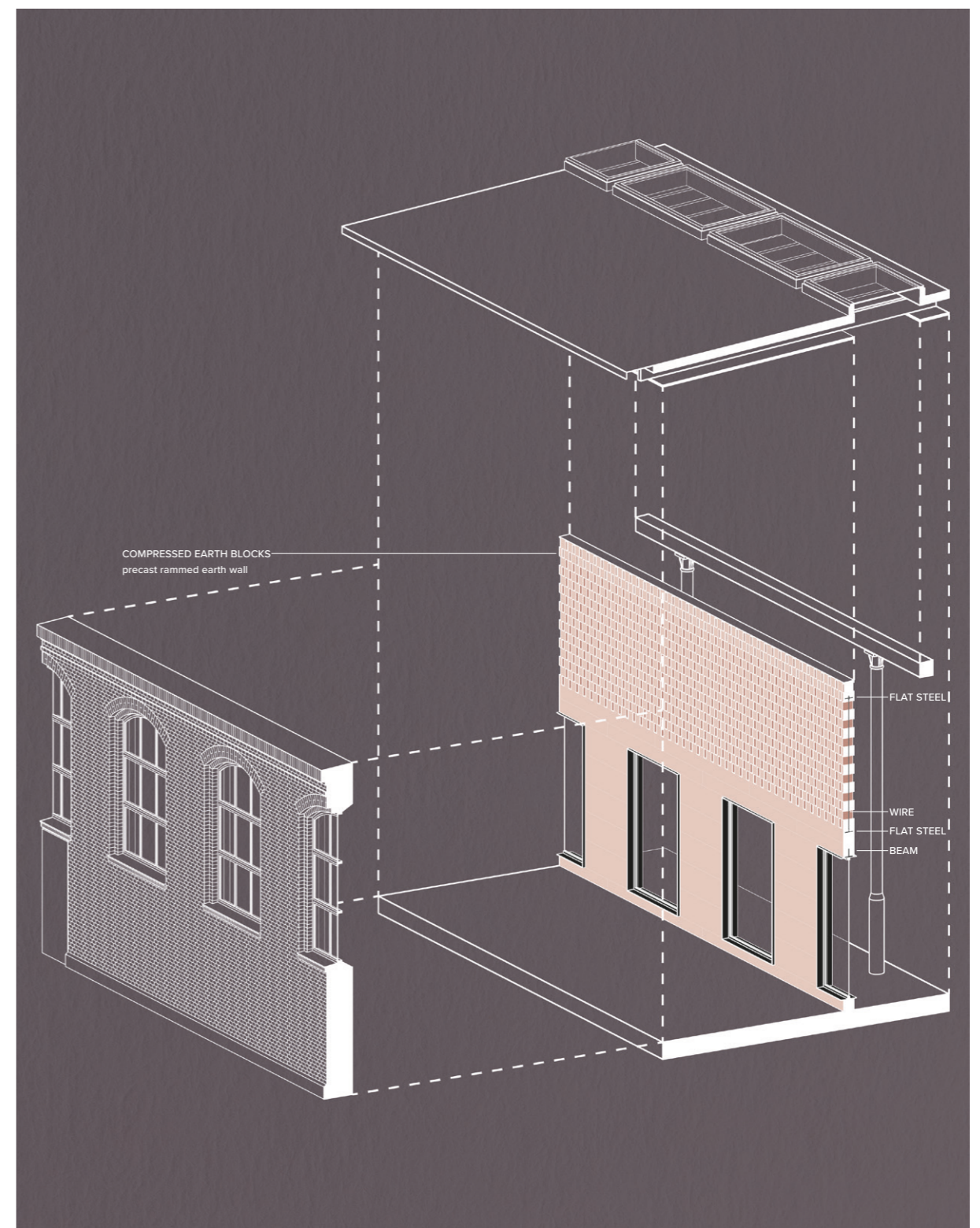


Exploded axonometric view of staircase



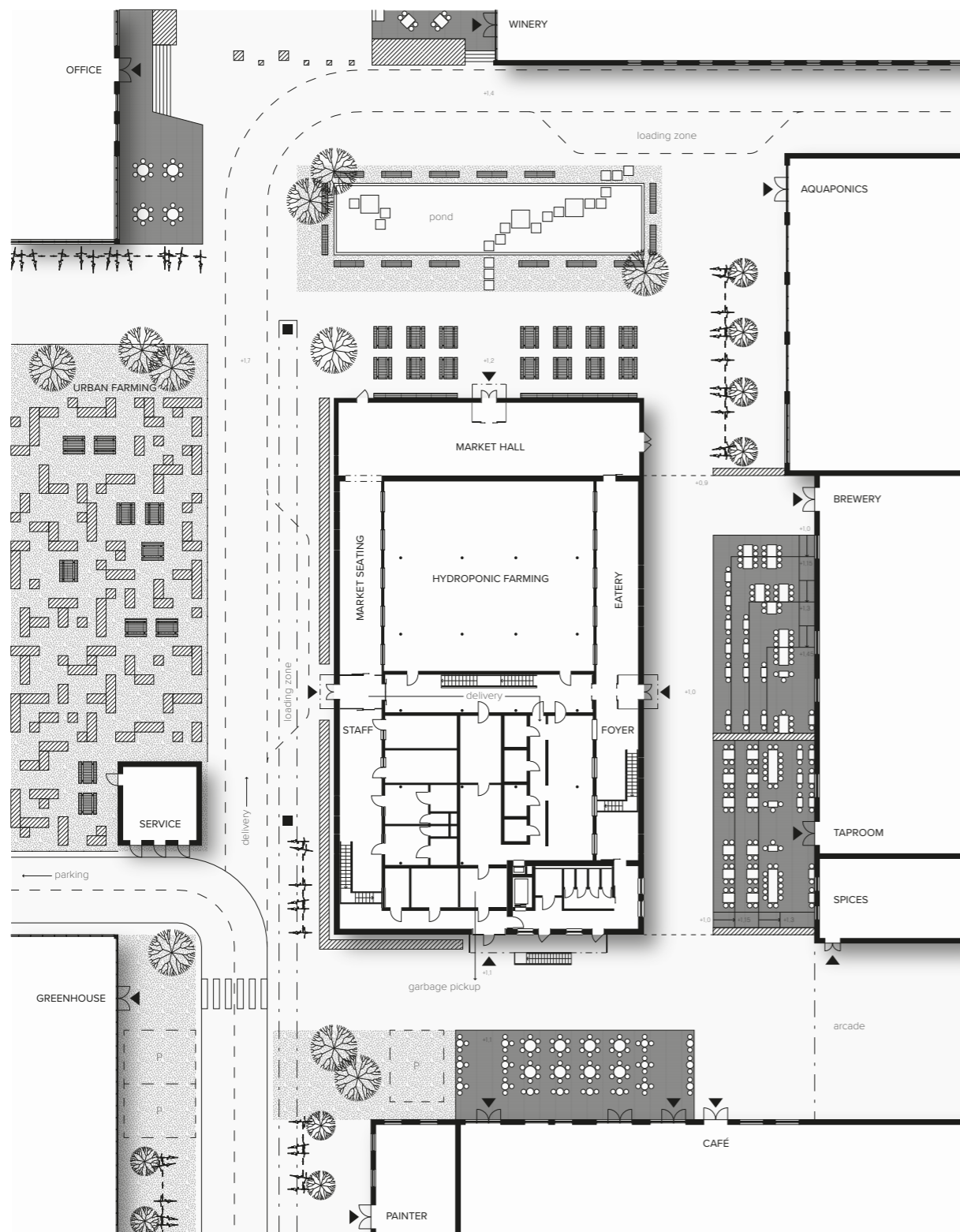
Elevation and section of rammed earth wall

1:20 0,5 m



Exploded axonometric view of rammed earth wall

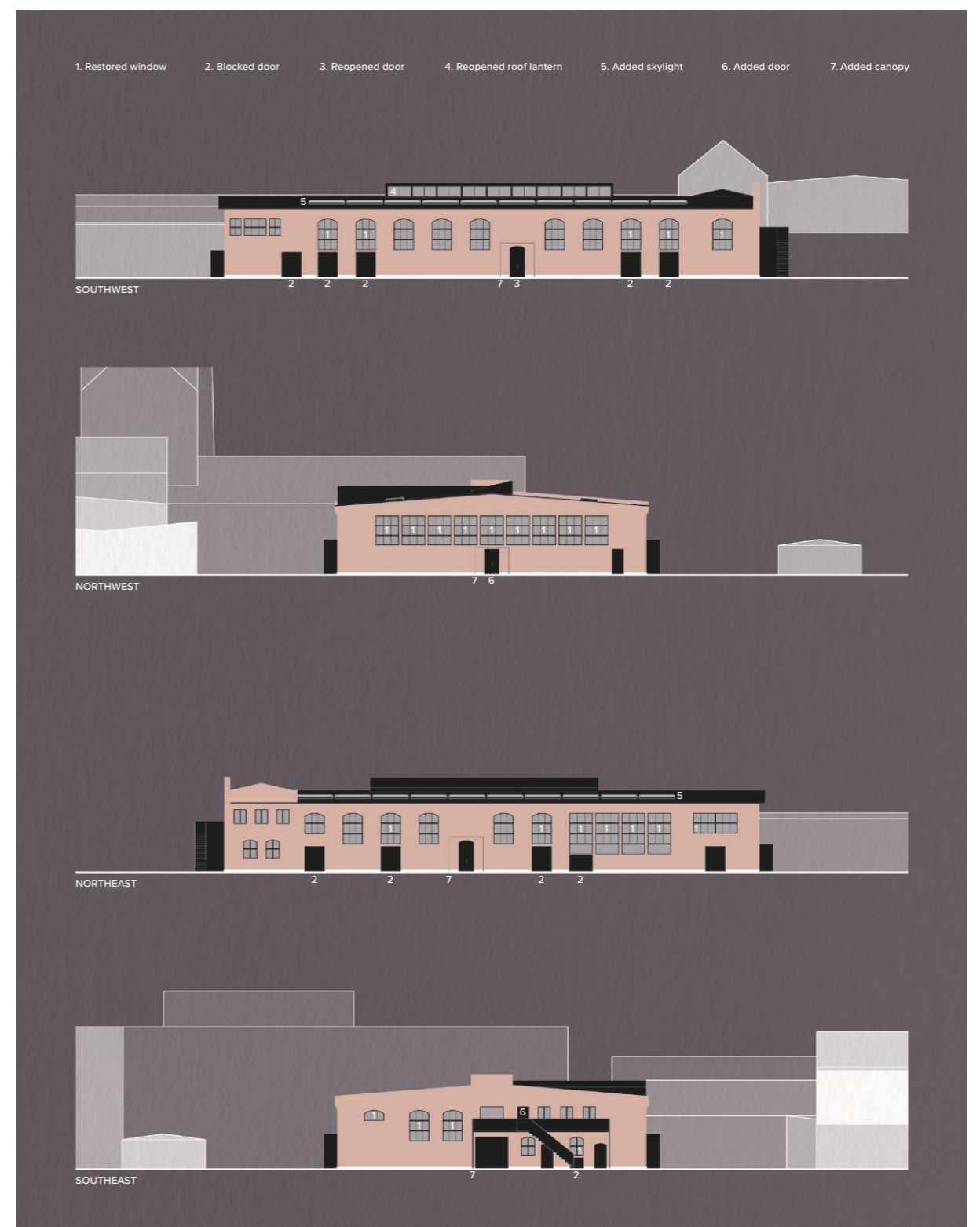
ROOTS



Site plan of the calf butchery according to the thesis' vision

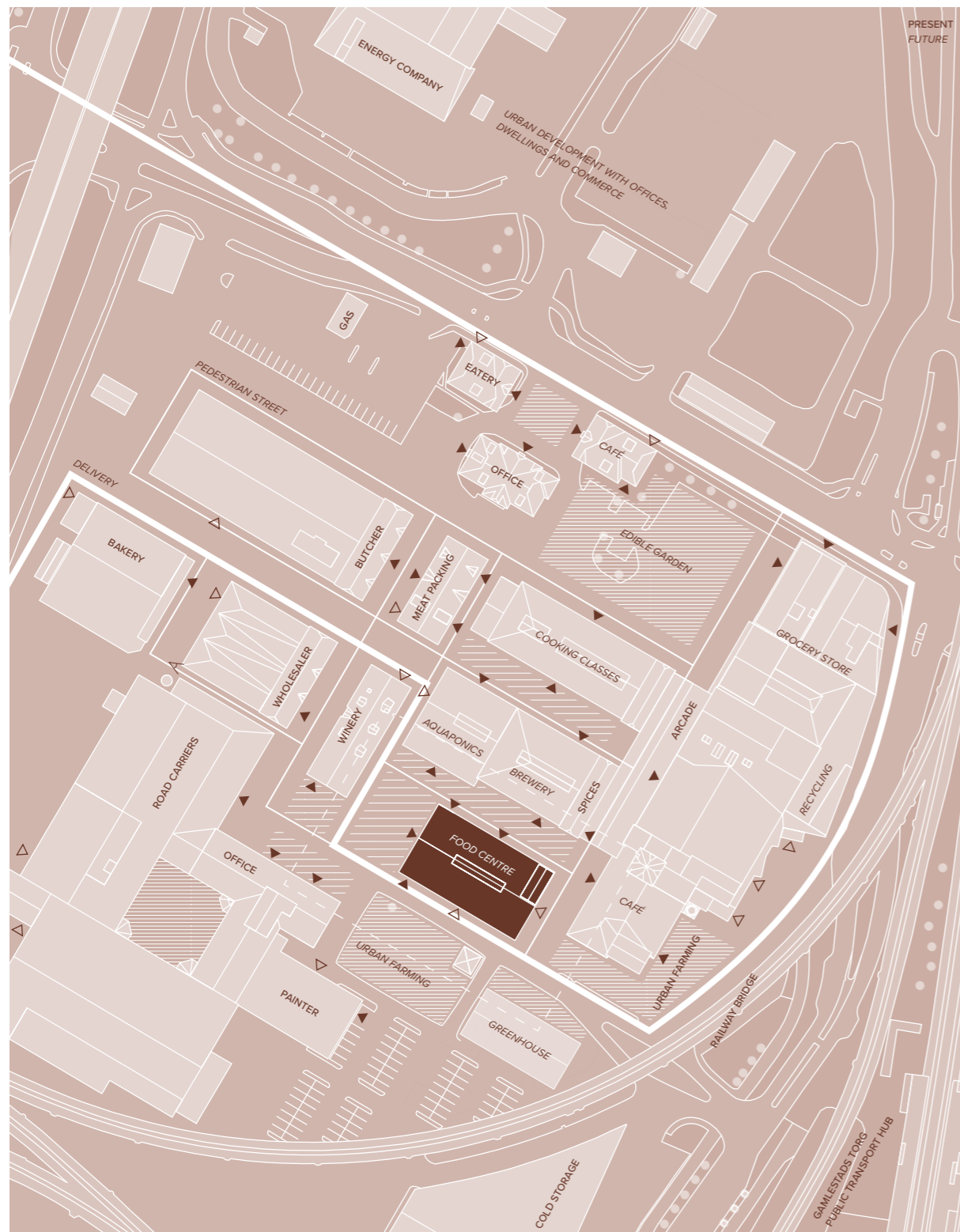
1:500 10 m

DESIGN



Facades

1:500 10 m



Site plan of the slaughterhouse according to the thesis' vision, compared to site plan on p. 29



Site model of the slaughterhouse

POSTLUDE

REFLECTION

I have asked myself several times why the memory of the slaughterhouse is worth preserving. It is true that some of its memories are brutal, and one might instinctively keep it at distance. But the closer I got to know the slaughterhouse, the deeper I understood its significance.

The story I have chosen to tell is not about the act of slaughter, but about people and community. In fact, the object for this thesis could have been any building. Having that said, it was intriguing to tackle the cultural clash that occurred whilst combining phenomenology with industry. I have come to realise that architecture of all sorts are containers of memories. Hence, I cannot help but wonder if a building's memory is dependent on the preservation of the building, or, what happens to the memory if the building is demolished? I have no answer to that question, and it has been important for me to not enter the realms of nostalgia. I strongly believe that the preservation of a memory ought to stay relevant. Remembrance can be meaningful and enlightening, providing perspective of our role in the continuity of time, which is key for future development.

At first, I found it challenging to translate theory into design, and I considered phrasing a set of rules to justify the proposal. But memories are fragile and not easily put into a framework. Thus, I dropped the rules and relied on intuition. Unfolding the memory of the slaughterhouse requires imagination. Consequently, understanding and interpretation are devolved to the observer. The thesis has been a balance on the margin between soft values and matter. Focus has been on treating architectural elements as tools to activate its users through bodily and sensory consciousness. It falls into the small things; to grab the leather-bound door handle and experience the weight of the door, to scooch together in the booth at the eatery, and to feel the light sway of the hanging stairs in contrast to the grounded rammed earth. The aim has been to awaken awareness of space, because with awareness comes curiosity, and only then can we take part of the narrative.

Worth mentioning is that the project involves some novel features. I could have written an entire thesis on either rammed earth construction, hydroponic farming, or tempeh production. Instead, I have used these features as tools to communicate a narrative. Also, note that the theoretical research is based on philosophy, not necessarily scientific facts. Nevertheless, these theories have been academically accepted and used for a long period of time, which is visible in the references that are selected from a wide timespan and diverse disciplines.

CONCLUSION

The conclusion is based upon the two thesis questions, where the former is resolved through theory and the latter through design.

Can architecture reveal, and tend to, collective memories of a place?

As the theoretical research imply, all memories take place somewhere. If you think of it, it is self-explained. Take any memory and you will notice that it is anchored in space. Many references presented in the thesis claim that architecture is a framework for, and container of, our personal and collective memories. A building can be a reminder of past events and experiences. What is difficult is to communicate these memories through matter and design. In order to reimagine a building's memory, one needs to engage with its narrative, which can be encouraged through bodily and sensory consciousness.

Designing for remembrance is a way to strengthen rootedness, that is, the bond between human being and environment. Intangible values like these can easily be down prioritised within the more concrete planning and building process. I dare say it is the role of the architect to take the subtle in account and add memory as a qualitative feature in an early stage of the design process. To do so, memory ought to be a part of the site analysis. There is no universal solution on how to do this since every context is different, but to reveal and tend to memories of a place can involve anything from programme and planning, to materials and detailing.

How can the slaughterhouse's heritage outlive urban renewal?

Heritage as well as memories are not static, but dynamic. The built environment faces continuous changes, and so does cultural-historical values. The most efficient way to preserve a memory seems to be to keep it alive, but also adaptable. Development and changes are part of our heritage. Thus, by giving the slaughterhouse a new purpose it can remain useful and meaningful for the city and for those who visit the site. However, both the new purpose and the physical changes made to the building ought to be rooted in the building's identity and narrative. My impression is that urban renewal plans tend to imply universal design solutions, turning various areas around the world to look the same. The role of the architect must be to acknowledge the identity and memory of the specific context and use those qualities as point of departure in the design process. Regarding the slaughterhouse, I believe its heritage and essence lies in a sensibility for community, collaboration, production, and of course, food.

In the end, all memories need to be reimaged.

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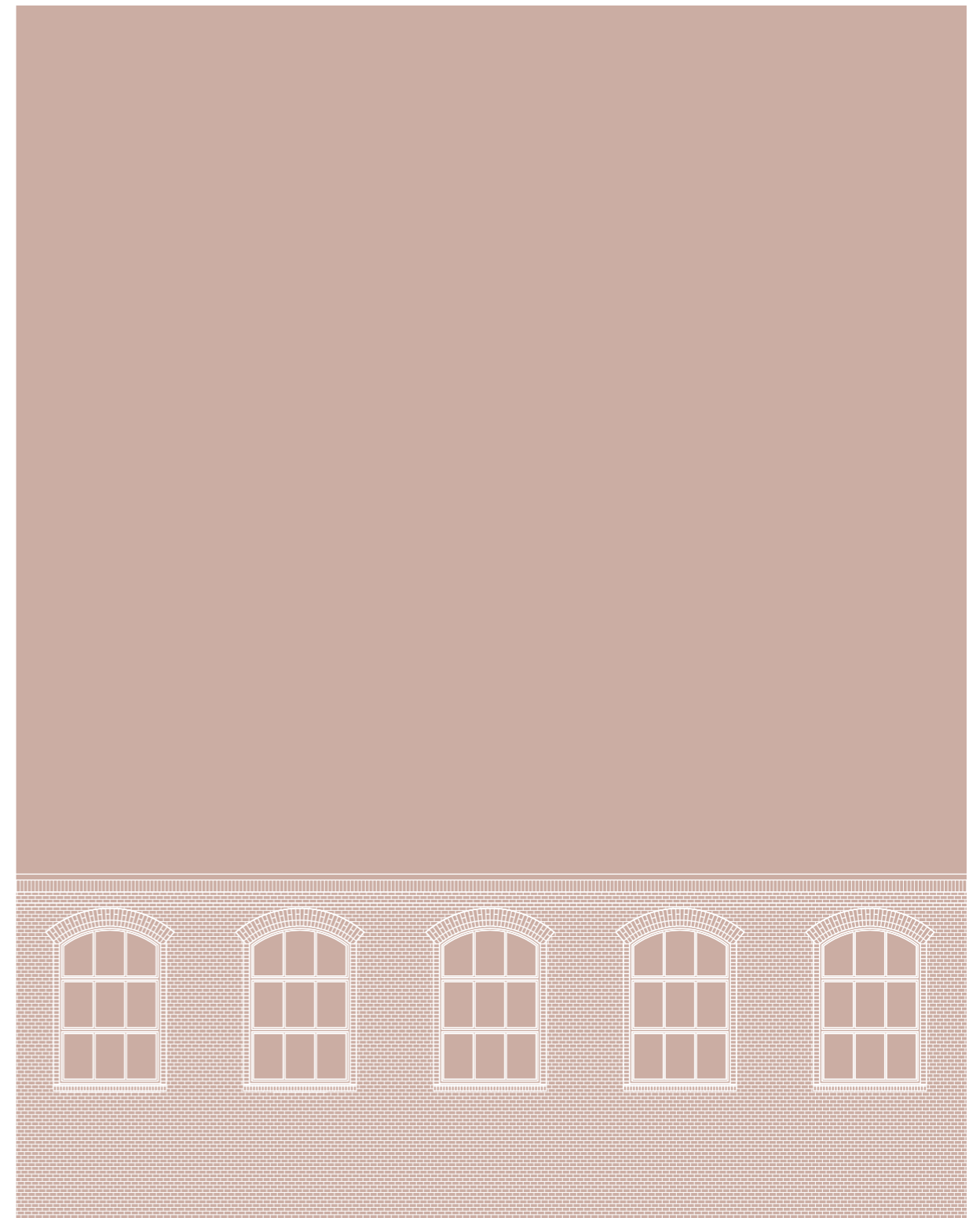
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Original southwest facade of the calf butchery

APPENDIX



The slaughterhouse, January 2020



Brickwall of the calf butchery, January 2020



Exterior of the calf butchery, January 2020

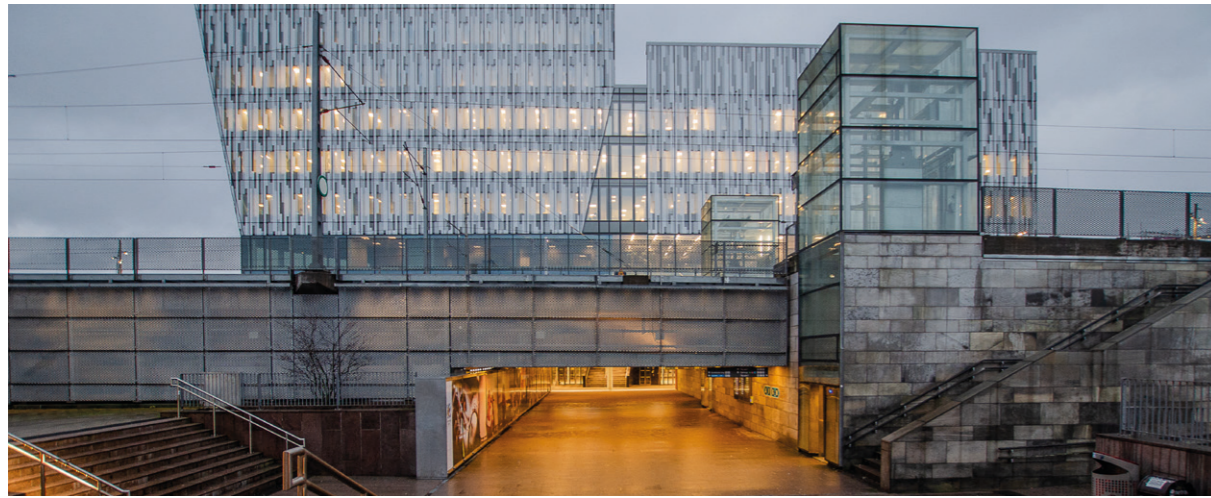
Exterior of the calf butchery, January 2020



Interior of the calf butchery, January 2020



Interior of the calf butchery, January 2020



The slaughterhouse's borders and surroundings, January 2020



The slaughterhouse's borders and surroundings, January 2020



SITE ANALYSIS

A SWOT analysis is a method for defining and describing the strengths, weaknesses, opportunities, and threats for a site. Strengths and weaknesses pinpoint current pros and cons, whereas opportunities and threats forecast future scenarios.

The analysis is used as foundation for phrasing objectives and strategies as means to reach a desirable future scenario. The objectives are formulated as statements about the desired future, and the strategies are the tools needed to reach these goals. By combining the strengths with the threats, and the weaknesses with the opportunities, the objectives and strategies often fall into place by themselves.

For instance, take the strength *"Historical site with readable layers of time"* along with the threat *"Lost character due to urban development"*, and the natural objective is *"Historical character is maintained throughout urban development"*, thus the strategy ought to be *"Plan for careful transformations that nourish the historical character"*.

OBJECTIVES

- Historical character is maintained throughout urban development.
- A diverse range of businesses and activities are accessible for all.
- The slaughterhouse is a platform for local producers of various scale.
- The streetscape is enhanced and enriched with new functions.
- The slaughterhouse is a dynamic centre for food and innovation.
- Noise and wind are reduced with added greenery.
- The area is resilient to flooding.
- Access to the area is improved for pedestrians and cyclists.
- Long-term visions are supported by the detailed development plan.

STRATEGIES

- Plan for careful transformations that nourish the historical character.
- Add public functions that are free to use.
- Provide with flexible space to enable small businesses to start up.
- Activate the facades and thereby the streetscape with public functions.
- Promote and showcase sustainable food production in the area.
- Add urban farming as means to decrease noise and wind.
- Add greenery and wetlands to decrease the risk of flooding.
- Clarify entrances to the area that invites visitors.
- Allow for slow and careful development and transformation.



Hydroponically grown salad, 31 days after seeding, May 2020

HYDROPONIC FARMING

Hydroponic farming is a method of cultivation where crops are grown in water instead of soil. The method is especially suitable for urban farming since it is space and time efficient and provides a larger yield.

The prerequisites are a system for irrigation with nutrition and sufficient lighting, either in a greenhouse or with artificial lighting indoors. There is a growing interest in hydroponic farming due to its many advantages. For instance, it is free from both soil-based pests and weeds, one can cultivate year-round independent of climate and season, no pesticides are needed, and it requires 90 % less water than traditional farming, at the same time as it gives 50 % faster yield. In short, the farmer gains greater control over the crops. Additionally, by growing hydroponically in urban contexts, less transport is needed. And since hydroponics enable vertical farming, the required space is minimised, which is key for implementing food production within the crowded city (Franzén, 2019).

The urban farming company Stadsjord combines hydroponics with aquaponics (fish farming) at the slaughterhouse in Gamlestaden today, where water from the fish farm serves as natural nutrient for the cultivation of greens. However, the water from their fish tanks would be enough for a great deal larger cultivation than the current hydroponic farm. According to Niklas Wennberg at Stadsjord, the production of 1 ton of fish would be in balance with a hydroponic farm that produced 10 ton of greens. And in their facilities of 50 square metres, they are producing 2 ton of fish a year. In other words, it would be beneficial to add more hydroponics to the slaughterhouse that can collaborate with Stadsjord's fish farm. And to close the loop, waste from the hydroponic farm can become feed for the fish (N. Wennberg, personal communication, February 11, 2020).

In the design proposal of this thesis, two hydroponic systems are implemented in the former, and nowadays empty, calf butchery. Leguminous crops are intended to be grown in a so-called ebb and flow system, and greens and herbs are intended to be grown vertically in an NFT system. By using about a quarter, 280 square metres, of the building, there is room for 768 ebb and flow buckets and 2 304 NFT pots. This would yield about 1,1 ton of leguminous crops and 1,1 ton of greens and herbs a month. Specifically, 27 ton a year in total according to numbers from Cornelia Franzén's master's thesis *Rethink Farming* (2019). Note that in this calculation, it is taken into account that Stadsjord intends to renew and expand their production on site.



Figure 3. Tempeh (Pixabay, n. d.).

TEMPEH

Tempeh is an Indonesian, vegetable-based food, originally made of fermented soybeans. However, other leguminous plants can also be used, for instance Swedish crops such as yellow peas and fava beans.

The fermentation process starts by adding fungal spores and vinegar, and the peas or beans bind into a block that reminds of tofu, but with a firmer consistence. The result is peas and beans with increased flavour and nutritive content, and that are easier to digest. Tempeh absorbs flavours from marinades and can be cooked in various ways – grilled, boiled in a stew, oven baked, fried, deep-fried, or added to a wok (de Temmerman, 2015). Above all, it is delicious and chewier than many other vegetable-based proteins. Once you have gained understanding of the fermentation process, you can make your own tempeh at home, following the recipe below. Or, one can simply head over to the vegetarian shelf at the grocery store.

In order to produce tempeh professionally however, a kitchen equipped with stations for soaking, boiling, packaging, and pasteurisation is required, as well as an incubator room for full control of the fermentation process. Apart from that applies the food industry regulations regarding work environment, accessibility, and hygiene (K. de Temmerman, personal communication, February 18, 2020).

INGREDIENTS

Beans or peas
Vinegar
Rhizopus spores

1. Grind the beans/peas to remove the peel.
2. Soak the beans/peas in water overnight.
3. Boil the beans/peas until they are almost soft.
4. Air-dry the beans/peas.
5. Add vinegar and spores and pour into bags with airholes.
6. Place the bags on a grid in an incubator at 28-35 ° C for 24-30 hours until the beans/peas are fermented.
7. Place the bags into another, sealed bag and store in fridge or freezer. (de Temmerman, 2015).



Figure 4. Red Rammed Earth Wall (Adobe Stock, n. d.).

RAMMED EARTH

“The envelope that surrounds us should be able to breathe and diffuse in the same way as our bodies.” – Martin Rauch (2015, p. 84).

In short, rammed earth is an ancient construction method where many layers of clay are compressed into a solid element, mainly walls and floors. Being all natural, a building made of rammed earth will eventually wear down and once again become a part of the soil, leaving no traces behind. But if cared for, a rammed earth building will last for a long period of time and develop beautiful patina.

The clay used for construction is generally taken from, or close to, the site where the building will stand, making use of local resources and minimising transport. This is a vital quality, not only because of environmental aspects, but since the appearance of the clay varies around the world. The local clay is unique for each site and says something about the identity of the place. Moreover, the material itself is cheap, sometimes even free, but the construction process is labour intensive. This contradiction has made rammed earth an expensive construction method in developed countries where workforce is costly, whereas it is considered an everyday material in developing countries.

Traditionally, rammed earth constructions are casted in situ. The clay is poured into a formwork and stamped, layer by layer. However, rammed earth buildings can also be prefabricated. Elements are then casted in a workshop, divided into blocks and later stacked on site. These blocks are commonly known as compressed earth blocks. The joints are not visible since clay is used to smooth out the surface, resulting in a solid appearance. Thus, the characteristic horizontal wave pattern can be achieved by compressed earth blocks as well. In addition, prefabrication simplifies some structural issues. Generally, wall openings are critical points in rammed earth constructions and needs to be planned and dimensioned by a structural engineer. There are various techniques to span loads over openings, in this thesis, concealed lintels are integrated in the blocks to achieve a monolithic expression.

Rammed earth is a dynamic material with many qualities in terms of humidity, acoustics, and not the least, tactility. It is a material that gets along with the human body and our senses (Rauch, 2015).



Ryoanji, Kyoto, Japan, May 2018



Heian Shrine Garden, Kyoto, Japan, May 2018

ROOTS
a reminder of memories in times of urban renewal

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