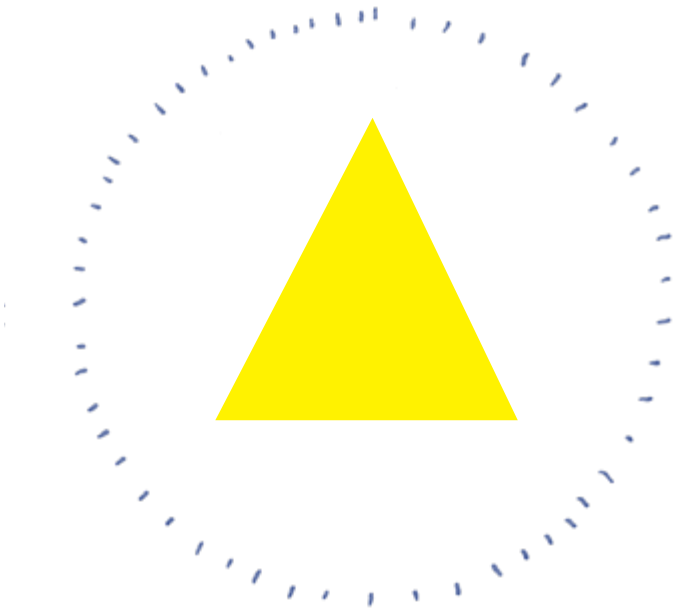

transcribing sequences

A Notation System for Architecture

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CHALMERS

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Matter Space Structure
Chalmers School of Architecture
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Master's Programme in Architecture and Urban Design

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Abstract

This thesis develops a notation system for architecture that explains and deconstructs the experience of moving through a sequence of spaces. The notation system will serve as a tool for architects, complementary to traditional drawings and representations. The tools we use shape how and what we design, and by adding this method to the architect's toolbox, new spatial qualities are discovered and existing qualities highlighted.

The thesis explores the possibility to analyse the existing as well as to design new architecture, using a representation technique that deconstructs the spatial experience into its constitutive layers.

The notation system is created by transcribing four reference buildings, each bringing qualities into the system which is iterated to accommodate these qualities. The resulting notation system presents the experience of a building along a single path. It divides the spatial sequence into a number of scenes, each scene with signs that display what is experienced in that particular moment along the path. The signs represent both physical things, their influence on the space around them and perceived connections between things.

The system and accompanying theories are tested in a design proposal for a public library in an existing building in central Gothenburg. The design proposal is developed by making a translation from notation to a model that represents the experience in a sequence of 360 degree image montages.

Keywords

Architectural notation, movement, path, deconstructivism, spatial sequences, film montage theory, architectural representation, design tools, mapping

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Contents

Introduction

Background

An architect's drawing is a means to communicate their ideas, but also a tool for thinking architecture. What tools we use and what kinds of drawings we make shape how our minds work, and in consequence what we design, which is why it is important to make conscious decisions about them.

Architectural drawings traditionally depict only static properties of the built. They omit the user's experience over time - their movement through space. The overview that a floor plan gives is good and relevant but does not usually do much to explain or investigate the atmosphere of each moment in the building.

To convey the atmosphere of a space, perspective drawings are useful but they are also bound to the two dimensional drawing board or screen. The different kinds of projection drawings that are usually preferred by architects are valuable when communicating as they do not allow for many interpretations, but when it comes to thinking tools, there is a lot to gain from being less precise.

With the rise of CAD tools, the resulting architecture has been hugely influenced in style. Organic forms have become more common as a consequence of new parametric tools which propose different shapes than what would come natural with a ruler and a pen. The digital tools also give a precision to the design which might not always be appropriate for a sketch process. Many design decisions are made for us by the software designer if we are not conscious of its influence on our designs.

Artistic representations enable a non-reductive quality in images as they do not need to be uniformly read (by say a constructor or an HVAC technician). They allow the artist to explore from many perspectives and with performative properties.

Aim

The aim of this thesis is to develop a notation system that takes into account and describes the experience of moving through a building. The system should represent aspects of the spatial experience that are usually not communicated in projection drawings. It should function as a tool for both analysis and design and the thesis will investigate how using the system affects the architects' perception and design choices.

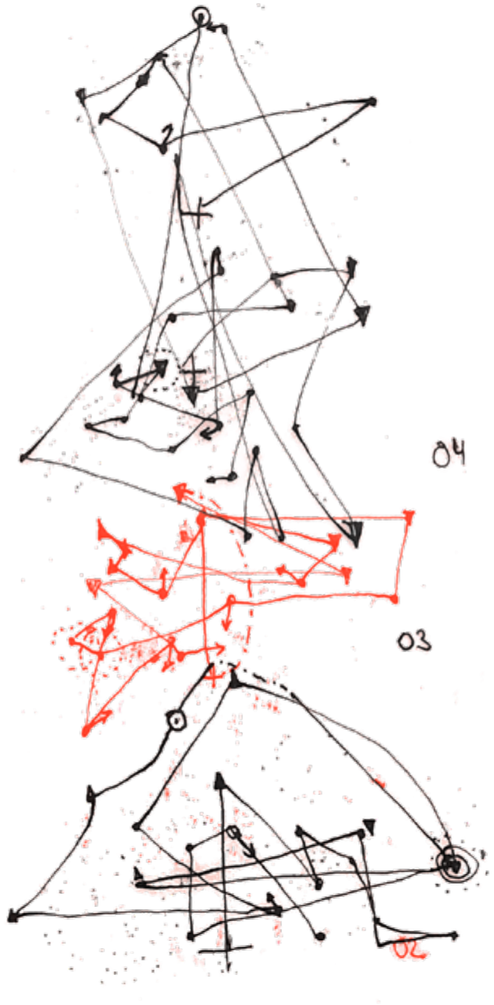


Figure 1. **Attention diagram of the Gothenburg Market Hall**

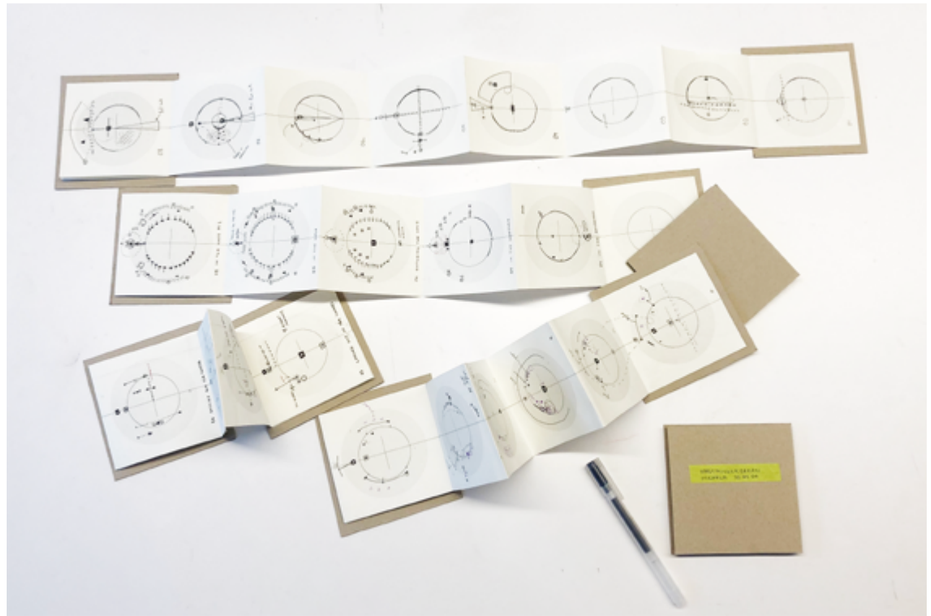


Figure 2. **Notation pads used to transcribe**

Method

This thesis is divided into two parts: Transcribe and Design.

Transcribe
deconstruct
scenes ⟶ sequence

Part 1 - Transcribe mainly involves developing the Notation System (the NS), by visiting and transcribing four buildings in Gothenburg. During this part, the main focus is to establish the framework of the notation language. The NS is developed and iterated to describe the experience of walking along a chosen path through the chosen reference buildings. In transcribing a sequence of spaces, individual “scenes” are seen as a base upon which an overall idea of the building can be understood.

Design
construct
sequence ⟶ scenes

Part 2 - Design applies the NS to a design proposal for a new public library in central Gothenburg. This part reimagines the system in order to also work as a design tool. For this, the NS is developed further to represent an overall intention for the spatial sequence, which then guides the design of the scenes.

Figure 3. **The method and its two parts**

The two parts are sequential, as Part 1 can be seen as a pre-study to Part 2; though the development of the two parts are not strictly chronological and have been parallel at times.

Thesis questions

To what extent can a notation system be used to observe the experience of phenomena in architecture, and what effects can this have on a design process?

What can be expressed of the architectural experience using a notation system? What properties should the system signify to extract relevant aspects of a building?

Is it possible to create new architecture, using the system as a guiding principle, with the same qualities as a notated building, but with another spatial configuration?

Delimitations

The NS is based entirely on four studied reference buildings. As a consequence, the system is not able to represent situations that do not occur in those buildings.

This thesis focuses on single routes through both the reference buildings and the design proposal. This will exclude some spaces and relations and focus on spaces that are relevant for the spatial experience along the path.

A possible extension of this thesis would be to develop the NS as a tool to ensure certain qualities in a project. However, it is not the intention for this thesis to construct rules for optimal spatial configurations.

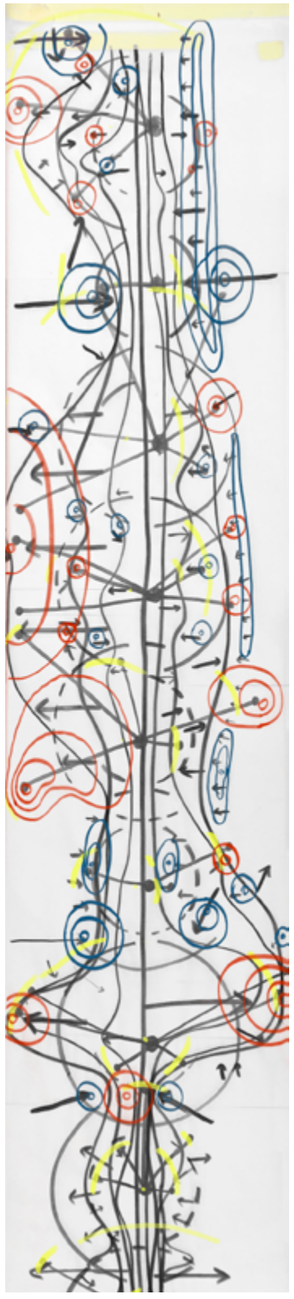


Figure 4. **Sketch of the sequential experience**

Part 1 - Transcription

Representing spatial experience

One of the aspects of representation is how precisely it represents a concept. Built architecture are often described as the “real”, but are, just like drawings, only representations of the architect’s ideas.

Peter Eisenman believes the true architecture is in the drawings and not in a built form. In an interview for Architectural Review, Eisenman differentiates “real architecture”, which can only exist in drawings, from “real buildings”, that exists outside the drawings. (Ansari, 2013) With his cardboard architecture houses, the goal was for the real building to be as close as possible to the real architecture. The real building aims to be a model of the conceptual reality of architecture.

This thesis aspires to extract knowledge from real buildings and with the developed method transform it into real architecture. That is, extracting architectural concepts from buildings and representing them in architectural drawings.

The paradox of representation

Stan Allan describes in “Practice: Architecture, Technique and Representation” (2009), the paradox of representing architectural concepts:

> ***Paradoxically, the dry, unemotional form of notation, which makes no attempt to approach reality through resemblance, is better able to anticipate the complexity and unpredictability of the real. This is the realm of building that can only be addressed through notation, and which connects architecture to the most abstract arts: poetry and music. In the passage from drawing to building, the real and the virtual will always be present in some unpredictable mixture.*** (p. 33)

Furthermore, Stan Allan discusses how autonomous a representation is from its author: If it is very dependent on it’s author for an accurate translation from mental concept to the real, or if the system is independent enough for anyone (fluent in the system) to make an accurate translation. The notation system developed in this thesis aims to position itself between the two extremes: while being structured enough to be understood and replicated, the system developed in this thesis aspires to keep some room for expression and interpretation, as this makes the system more useful as a design tool. Like any language, it is to the system’s benefit if the meaning can be somewhat shifting and allow different interpretations.

Deconstructivism

French philosopher Jacques Derrida coined the term deconstructivism when studying western philosophy texts and their inherent conceptual contradictions (e.g. presence/absence, talking/writing). Derrida talks of deconstructivism not as something destructive or negative but as taking something apart to see how it is assembled. Not to demolish but to see and understand. (Nilsson, 1996)

One of the central concepts of Derrida's Deconstructivism is "Différance", which means "difference and deferral of meaning". The term is a deliberate misspelling, as Derrida has exchanged an e for an a in the french "différence" to indicate the expanded meaning of the word. (Derrida, 1982)

One application of différance is the inherent deferral of time. Derrida argues that something can only be present in relation to something else. The present can never be separated from the past nor an expected future and therefore there can never be any pure presence. This, he claims, leads to a continuous deferral of the complete presence.

In regard to the NS, the exact experience of a space can never be replicated as the experience itself is subject to constant reconfiguration of meaning. Furthermore, the signs used when transcribing will alter in meaning upon use - a difficulty especially inherent with the application of an abstract language such as notations. This supports Stan Allan's point that notations can carry more complexity than a figurative drawing.

Derrida's theories on deconstructivism have inspired many postmodernist architects and there is a certain "fragmented" style most commonly related to the term. This thesis relates mainly to the philosophy of the term and less to the style. The deconstructivist idea of deconstructing something into its constitutive layers is given a quite literal approach in this thesis as the spatial sequences are often represented in actual layers of tracing paper.

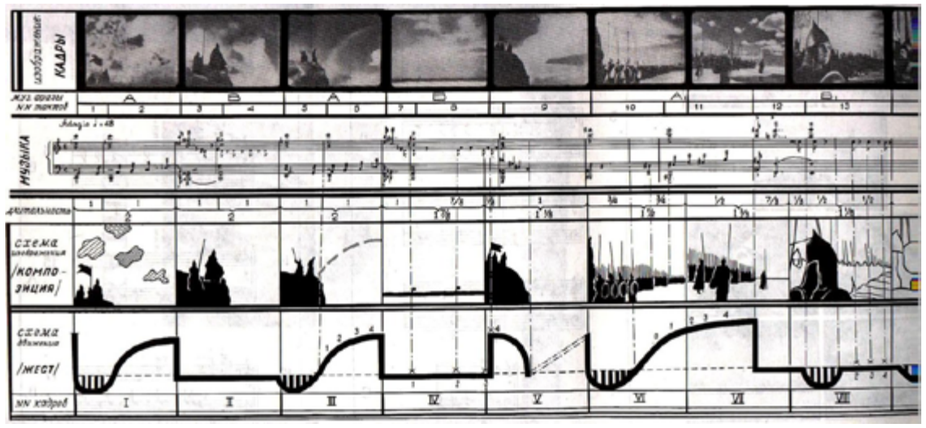


Figure 5. **Drawing from the article "Vertical Montage", 1940, Sergei Eisenstein**

Eisenstein's Montage theories

Sergei Eisenstein was an early soviet film director and theorist who developed the widespread Montage theories, which take a quite deconstructivist approach to filmmaking. In a 1949 essay from the book "Film Form. Essays in Film Theory" (Eisenstein & Leyda, 1977), he explains how he sees the cinema as mainly a correlation of two features:

> *Primo: photo-fragments of nature are recorded; secundo: these fragments are combined in various ways. Thus, the shot (or frame), and thus, montage.* (p.3)

A montage is not merely one frame after another but, according to Eisenstein, a collision of frames, where meaning is created by the "double exposure" of the individual frames read on top of each other.

Montage also wishes to remove the dualism of sound and sight and instead look at them as one audiovisual, or "vertical" montage. In the vertical montage Eisenstein empathizes certain themes of a scene.

This thesis attempts to bring into play Eisenstein's Montage theories by viewing architecture as an experience over time. By observing buildings along single paths, as sequences of spaces, we can read moments along that path as frames in a montage.

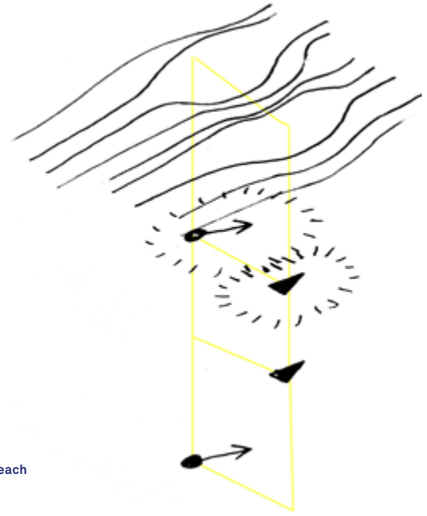


Figure 6. **Layers of the NS in relation to each other**

The Manhattan Transcripts

While representations for other art forms such as film or music and dance commonly map experience along a timeline, this is uncommon for architecture.

In his 1970's work, "the Manhattan Transcripts", Bernard Tschumi constructs a new architectural notation where events, space and movements are superimposed in sets and sequences of frames (sometimes mixed and interlocked with each other), in a cinematic manner - much like in Eisenstein's film notation. By introducing moments, sequences and intervals, Tschumi questions the traditional representation of plans and sections to present an architecture inseparable from the events in it. (Tschumi, 1981)

The Manhattan Transcripts are fascinating as they mimic the traditional axonometric drawings frequently used to represent forms in a quite exact way, but they are not in any way mere projections of three dimensional form but instead express how events affect the experience of space.

Tschumi's way of deconstructing the narrative sequence into three layers is similar to Eisenstein's script and to music notations as it allows the user to analyse the relations between the layers - how they affect each other. The system presented in this thesis also uses a layering for the same reasons.

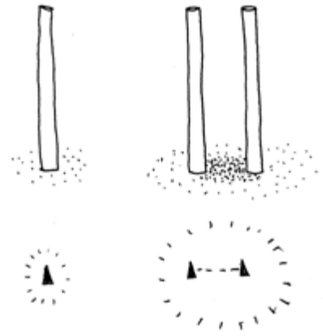


Figure 7. **Perceptual force surrounding objects**

Branzell's spatial bubbles

Chalmers alum Arne Branzell has published several works on the experience of space. In his book "On the Bubble" (2013), he imagines humans to be surrounded by a "space of experience", or a "bubble", which can be influenced in different ways by the surrounding. Branzell illustrates perceived forces around and between objects and represents them with bubbles. His work on "On the Bubble" is a continuation of a study made together with Kim Young Chul (1995) where they studied how humans are affected by these perceived forces.

According to Branzell, one could also divide spatial experience into three temporal states as one moves through space: expected, present and remembered space. The expected space is in relation to the physical aspects of the entrance to the next-coming space as well as the present space. The remembered space strengthens the characteristics of the present space.

This thesis adapts Branzell's approach to perceptual forces in space, and includes them in the NS as fields around things that influence our experience of space.

Branzell further applies his bubble theories on movement by analysing the experience of walks and sequences of spaces. He draws notations on a plan and displays views along different walks. Branzell argues that an impression can be built by walking a sequence and draws an example from the "Diplomatic way" of the Reichskanzlei in Berlin, where diplomats would have to walk a 230 meter long promenade before meeting with Hitler. (Branzell, 2013) While the dramaturgy presented in the chancellery was monotonous, oversized and symmetric to make the visitors feel uncertain and small, one could just as well imagine a walk that builds a feeling of lightness and excitement.

Figure 8. **Reichskanzlei grand marble gallery, Berlin, 1939**

Developing a notation system

The NS is developed through iterations made upon and with the influence of the reference buildings

Designs are influenced by the tools with which they are made. This is true for the Notation System as well. Although the NS takes the role of a framework, influencing how the reference buildings are seen and how the drawing tools are created, it is simultaneously being affected by said reference buildings and tools.

Reference buildings

The NS is shaped by visits to four reference buildings. The choice of buildings and the order in which they have been visited have affected the resulting system. As the Gothenburg Concert Hall was the first building visited, it has in particular had a great effect on the NS and focuses the system and its signs on rhythm, objects and direction. Since the visits to the Concert Hall were all made during closed hours, it has resulted in a lack of human interaction within the first iterations of the system. If the Market Hall would have been visited earlier, the NS would have been more focused on those interactions.

The function and program of chosen reference buildings should not be forgotten. They all have a high standing within society, and are connected to power in various ways. This is not something that the notation system directly approaches, even though it indirectly has affected the system in whole.

With each visit to the reference buildings, and with each iteration, the system has become more fluent and nuanced. The signs (see page 21) have evolved in meaning during the process. Some signs have shifted meaning due to a need to utilize as much as possible of a limited repertoire of signs and lines, some shifting unconsciously because of an inherent ***différance*** of their meaning. An example can be seen on page 25, where it is possible to see the difference between the two notators.

Différance - Derrida on page 9

Gothenburg Concert Hall

The first reference building, chosen primarily because of the clear path that it contains. During the visits to the Concert Hall many different techniques of notating the building were tested, and while none of them were completely successful, several of the elements of the final notation system (such as a need to express rhythm, direction and subspace) are derived from this building and the first attempts.

Victoriapassagen

Not a building, but a passage through a central block, lined with small stores and a café. The passage is not unlike Kommerserådet (page 31) and its planned use, as Victoriapassagen is can be seen as a “shortcut with benefits”. This was the first use of the notation pads, and the language has since evolved to express a connection between primary and secondary space as well as movement of objects and people.

Masthuggskyrkan

The third reference building is a church from 1914. Here, the iteration has focused on incorporating height into the system, as well as hierarchy - showing, for instance, the difference between the hymnal cart and the Jesus statue.

Gothenburg Market Hall

The final reference building (and iteration) adds a layer of human activity. It is also the first iteration that actively separates the notations into layers, allowing for more experimental and intuitive notation sketches. The customers and staff are represented more extensively than any other type of notation.

Figure 9. **Early drawing of flow in the cloakroom of the concert hall**

Figure 10. **Prototype of drawing tool which held double drawing layers**

Figure 11. **Foldable notation pads**

Sequences and scenes

The foundation of the NS is the act of following a path, or a sequence of spaces, through a building. The sequence is divided into scenes, according to what suits the notator and not necessarily according to the layout of the spaces. These scenes are frozen moments along the path.

Architecture is experienced in sequences. These sequences differ from person to person, because the experience differs from person to person. Each scene is also experienced in relation to the scenes before and after and are not meant to be read on their own. The experience of space is always in relation to memory and anticipation.

Tools

The first tool (Figure 10) created was a portable drawing board with two rollable layers of paper with the intention of drawing the whole sequence on the same piece of paper. The tool however, proved to be bulky and inflexible, rendering it hard to use.

The notation pads were developed in order to improve flexibility and portability. They are folded paper accordions, designed to be usable in a field study. The folds help the notator focus on one scene at a time, while still allowing them to view the whole sequence by unfolding it (Figure 11). The notation pads are easy to produce, pocket sized and it is simple to edit the sequence if needed by simply swapping a few of the scenes. The concept of drawing the whole sequence on one piece of paper is used during the design phase (page 35).

Layers

By separating the notations on layers - squares of tracing paper easily fitted in the notation pad - the notations can contain more information without the risk of becoming illegible. This also allows the notator more freedom to experiment. During the visit to the Gothenburg Market Hall the first base notation was used as a ground upon which layers of notation was added. The layers are used to notate intuitively, drawing without the direct use of the signs but allowing the base layer to influence the upper ones. Some layers are difficult to compare, but expressive on their own, and some work well as an addition or explanation to the base notation.

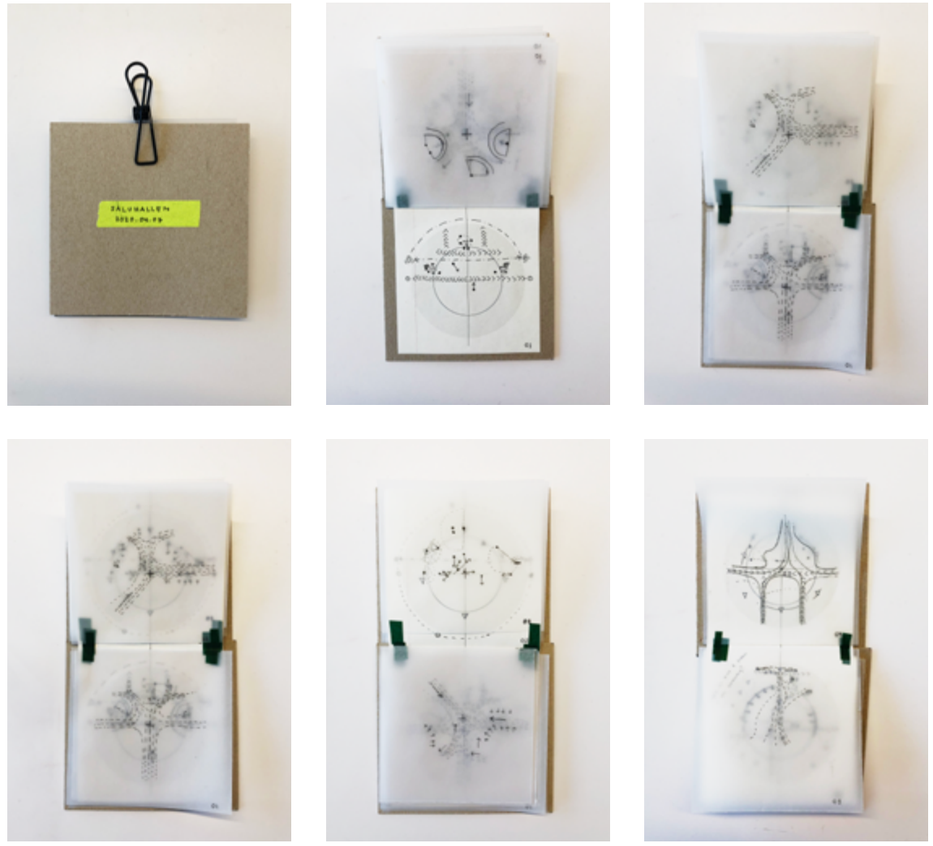


Figure 12. **Notation pads with interpretative layers**

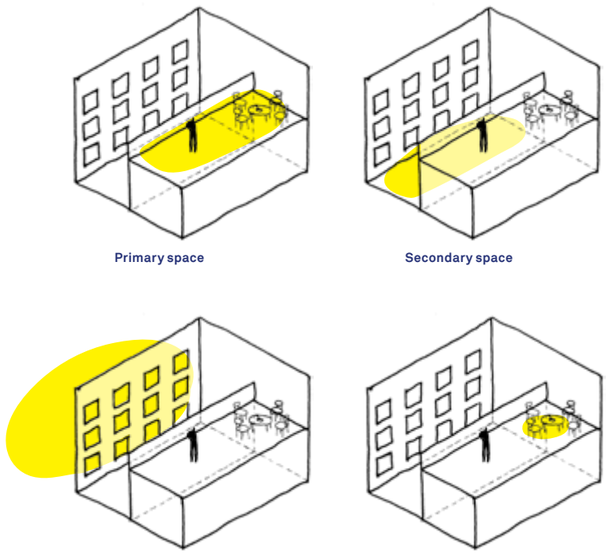


Figure 13. **Levels of simultaneous in-space**

Där är där man inte är
Här är här där man är
Åh här har man alltid med sig!
Här har man alltid med sig!

Song from Swedish children's television show, Fem myror är fler än fyra elefanter, 1975

Levels of simultaneous in-space

Architect Philip Thiel presents in "People, Paths and Purposes" (1996), a method of dividing space according to the specific viewpoint of the viewer. The primary space is the space in which the viewer is, the smallest clearly defined space, surrounded by walls or screens or divided by objects. The secondary space is second to the closest space, outside of the primary space. This might be outside a window, or in another room visible from the viewers viewpoint. Tertiary space is a level further of this, a space outside the secondary space. Thiel also presents "subspace" as a divided part of your primary space, created by, for instance, furniture.

In the NS, primary and secondary space is clearly defined. In real buildings, however, this division is not always so obvious. The definition may differ between notators, especially for large open spaces where the experience of your ***room bubble*** (as defined by Arne Branzell) does not always coincide with the defining objects of the room.

Room bubble - Branzell on page 12

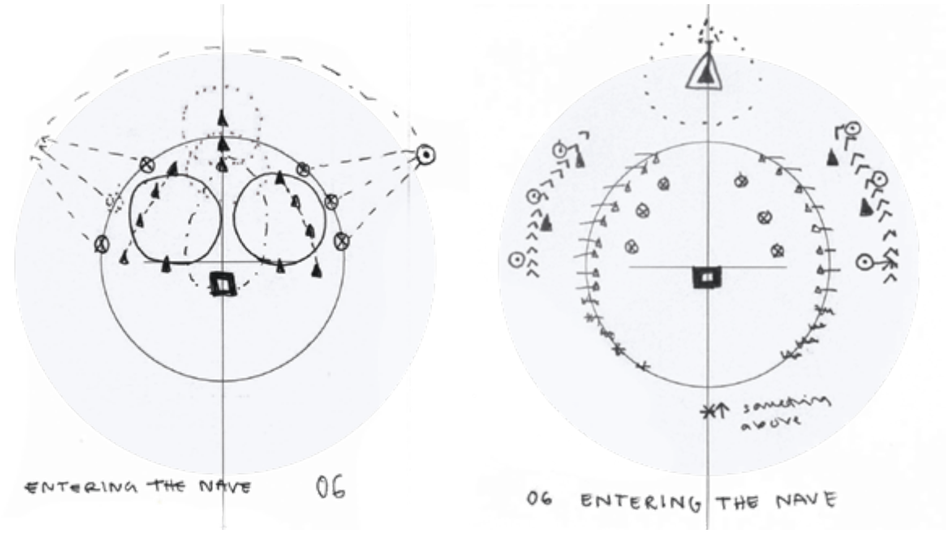


Figure 14. **Scene 06 from Masthuggskyrkan: examples of how the notators' experience of primary space differed**

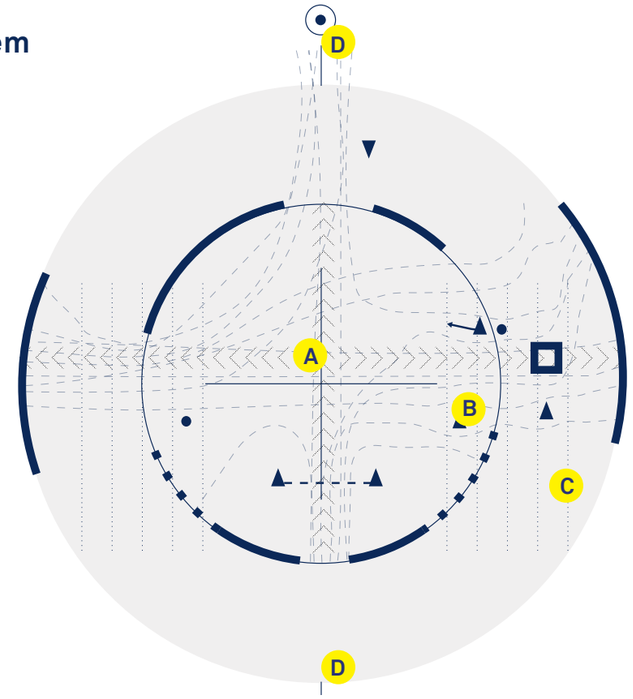


Figure 15. **Example notation**

The base

The base is the ground upon which the notations are made. The notator is always in the middle (A), facing towards the top of the page.

The notator's primary space is within the inner circle (B), and the secondary space within the outer circle (C). The border between the primary space and the secondary space (B) can be enforced or dissolved as needed, as part of the notation.

Signs are placed within the primary or secondary space at a relative distance and direction from the notator.

If a tertiary space is needed, the notations are placed outside the outer circle (C).

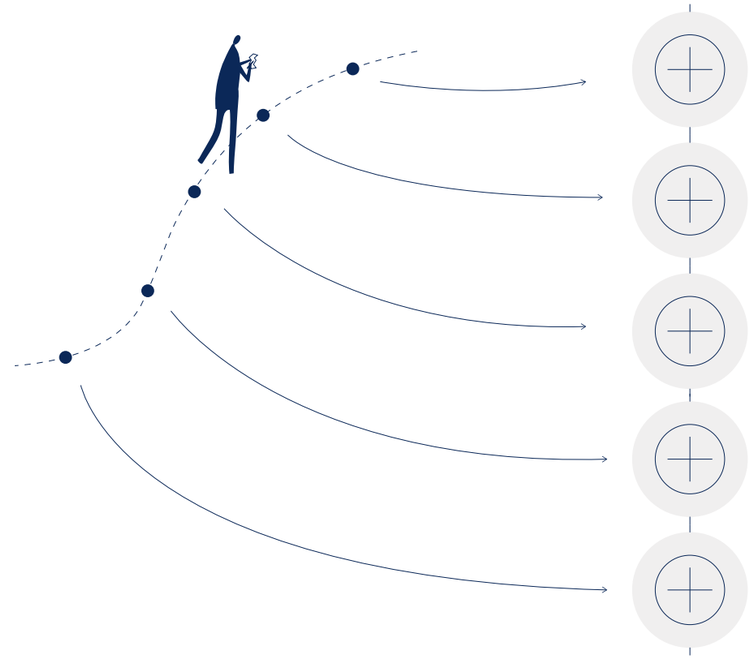


Figure 16. **From path to sequence of scenes**

The path

The middle line (D) is a marks the path that the notator follows.

Sequences and scenes

In the notation system the word ***scene*** is used to describe a frozen moment along a path. A ***sequence*** is several scenes together, connected connected with the path.

A new scene is used for every new placement of the notator. The amount of scenes needed varies from building to building.

Signs

The signs signify phenomena encountered or remembered. The signs can be used on their own, in combination with each other or together with an attribute. The signs and attributes are presented in full on page 21.

The signs used in the notation can be used in combinations, on their own or with attributes such as arrows, lines or annotations.

Basic signs

▲ *Object* : A physical object effecting your perception of the space.

◯ *Subspace* : A subdivision within your primary space - a room within a room. Defined by its function, or its edges. For instance, furniture may create a subspace.

⊙ *Sun* : Sunlight.

• *Person* : A person.

▼ *Event :* A gathering of people or the possibility of the same.

◻ *Larger volume* : A contrast between a previous smaller space and an entered larger space. Can be used as a indicator of anticipation, as well as indicating the memory of a change in volume.

◼ *Smaller volume* : A contrast between a previous larger space and an entered smaller space. Can be used as a indicator of anticipation, as well as indicating the memory of a change in volume.

⊗ *Light source* : A sign indicating a light source relevant to the perception of space.

✳ *Curiosity* : A thing unseen, used to indicate something unknown but attracting.

↰ *Turn* : A turn made.

Stairs : A lateral movement.

Examples of combined signs

Unseen event

Object illuminated by sunlight

Lateral movement leading to smaller volume

Several related objects

Lines and attributes

Field : A solid line signifies a field. Used on its own in a closed hoop, it signifies a subspace. Used together with a sign, either in a closed hoop or as an open line, it signifies a field of that sign.

Connection : A dashed line signifies a connection. Used as a helping line, or to indicate a weaker link between objects than a field-line. The dashed line can be used to connect signs to clarify combined signs.

Force : A dotted line, used in a closed hoop, signifies a force field. It is used to indicate the perceptual force surrounding specific objects and people. The line type can also be used in combination with arrows, used to indicate movement or weak spots of (primary, secondary, sub-) space.

Above : A dash-dotted line is used to signify subspaces or force fields above the notator.

Intensive : Using an outline around a sign intensifies it. This is a way of indicating hierarchy.

Direction / Movement : An arrow connected to the sign, indicating direction and or movement. The arrow itself can consist of the different line types.

Direction of space : A strong direction in a space.

Examples of signs with attributes

A field of objects

A screen of objects

An extended object with a force field

Person in movement with force field

A field of sunlight

A field of light or light sources above

Thinking with the hand

To transcribe architecture using the NS is a phenomenological exercise. The space is felt, with the eye and the senses, and then denotated. The resulting notation, although not as directly translatable as Juhani Pallasmaa's idea of using a pen as a extension of the body to physically trace the silhouette of a mountain range (2009), is a collection of sensory impressions in the shape of an unemotional language. This is one of the reasons why it is difficult to compare notations made by different notators, as both the experience and the resulting transcription are highly subjective.

A practical guide to transcribing

› Before starting, assess how many scenes will be needed and what an approximate distance between them might be. To walk the path before starting to notate is good praxis.

› Starting in the first scene, assess the boundaries of the primary space. If the space is a medium sized enclosed room, this is effortless - the walls of the room are represented by filling in the circle of the primary space on the notation template.

› Assess the connection to the secondary space. By enforcing the line separating primary and secondary space on the notation pad the level of enclosement of the primary space can be described. The addition of arrows can be used to indicate "leakage" of primary space. This is especially useful if the primary space is not clearly defined.

› Place signs. How the signs are used is up to each notator. A general tip is to start with the most prominent feature of the room and notate that. It is better to observe something and figure out/look up how that could be notated than the other way round. Only later it is a good idea to take a look at the notation index and see if there is something forgotten that might make the scene more complete.

› Add a layer, or several to the notation pad. These can be more experimental, as they do not affect the signs made previously. It is helpful if the same kind of layer is added to each of the scenes for comparability.

› Repeat for each scene until the sequence is complete.

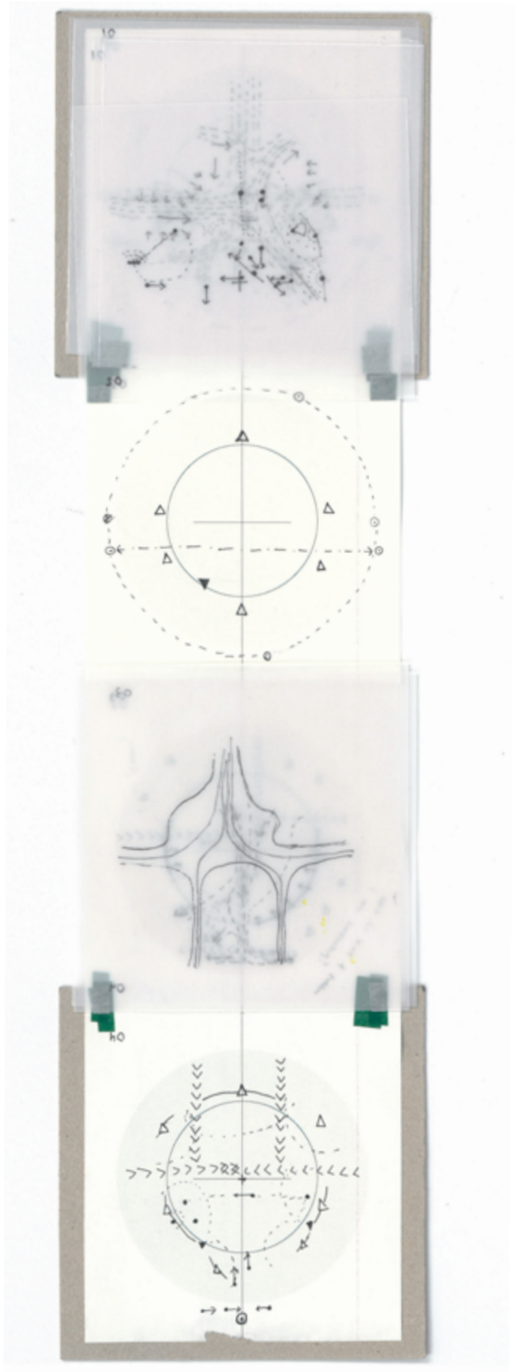


Figure 17. **Notation pad with layers from Gothenburg Market Hall**

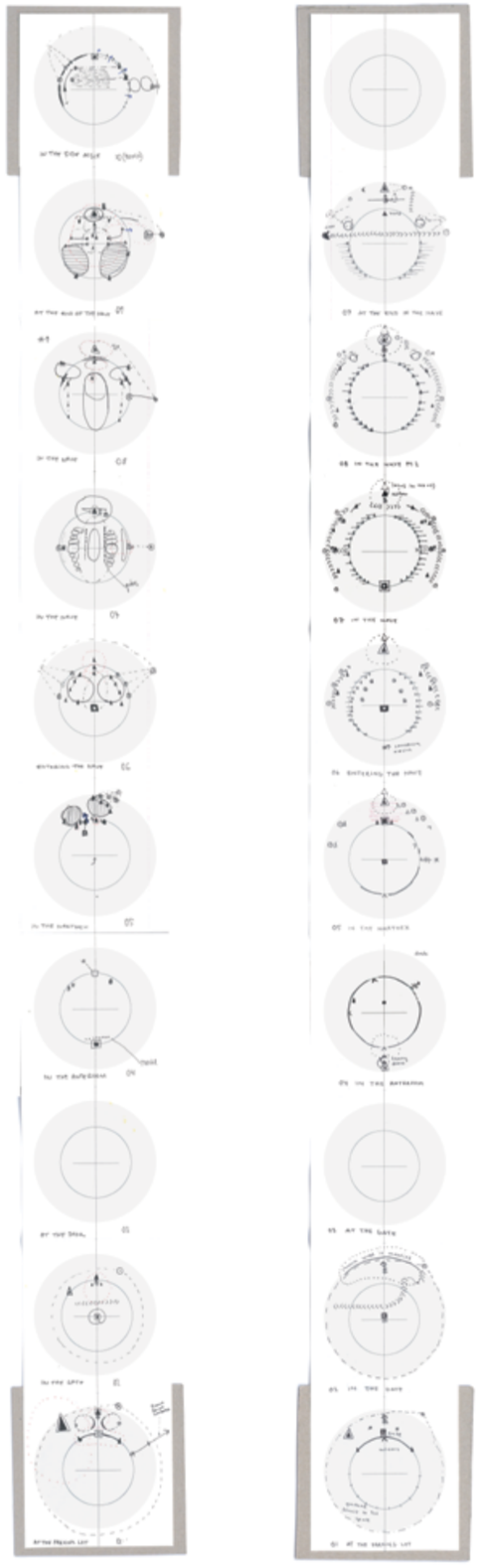


Figure 18. **Notation pads with basic notations from Masthuggskyrkan made by two different notators.**

Reflection on part 1

By the creation and use of the NS, each step of the process is a continuous questioning of the system itself. “Would it be better if...?” “How should this be represented?” As in any process, each decision has consequences. The creation of the notation pads made the transcription portable, but limited the level of detail due to their pocket sized measurements.

The number of signs needed to be limited to make the system easy to learn and use, so each of the symbols needed to be quite general in their meaning. A consequence of this is that the system can be over-simplified and too abstract to read without knowing all of the symbols. The notators’ relation to each other might be crucial to completely understand each other’s notation.

The choice of the NS’s base and signs implies architectural values. The represented phenomena is presented to be more important than phenomena not included. In this thesis, this choice of inclusion or exclusion could have been more conscious. In the end, the NS covers basic geometric properties, but lacks some of the finer notions that were aimed for initially. Perhaps the desire to be communicative hindered the system, as the more basic, tangible phenomena were prioritized above the more subjective ones. The difficulty of explaining the subjective phenomena with words caused them to be avoided. Ironic, because communicating such matters is something a notation system could be helpful for.

However, one of the NS’s primary benefits is that it directs its users’ remembrance. The same way that drawing a sketch of a view will strengthen that scene in the memory of the artist, the NS strengthens the memory of a sequence - especially one that necessitates discussion - either with a fellow notator or the system itself.

Part 2 - Design

A walk-through library

To test its validity and to iterate the Notation System further as a design tool, a public library is designed in central Gothenburg. An existing building is used to delimit the design task, and a new passageway is created to benefit the city as well as to be the focus path of the library.

A path through

As the NS focuses on experiences along a chosen path, it follows that the design made should also focus on this experience. The design is focused on creating a "promenade architecturale" and choreographing the spaces along the path.

Le Corbusier's "promenade architecturale" refers to the act of walking through a building, as well as a complex treatment and planning of consecutive spaces. The promenade means to expose the visitors to an unexpected experience of the building and its surroundings. (Samuel, 2010)

An existing building

The decision to base the design in an existing building was made to delimit the project as well as to inform the design and the notations. A condition for the project site was that there would be a possible path through.

In the chosen building, Kommerserådet, a path is possible from one side to the other. The site is well connected but the existing building obstructs the flow of the city and the very central Drottninggatan feels like a backstreet. By opening the block and adding the possibility to pass through, the circulation of the area would improve.

A new city library

A program of a more public variety allows a more open facade towards the streets in both directions. The program of a library is chosen as it has a simple and flexible narrative which is helpful for choreographing the space. The location and the public program also encourages a flow through the building, allowing for people to casually experience the library's program without direct interaction.

A path-focused design

The design is based on the chosen path through the building and explored through the scenes along the path. The NS is used to inform and explore the sequence as well as each scene. This is a delimitation for the design, as spaces not accessible from the path will not be taken into consideration.

Figure 19. **Situation 1:2000**

Kommerserådet

The property is situated in between Drottninggatan and Södra Hamngatan, one block north of the Gothenburg Cathedral in a central part of the city with a view of the city canal. It was built in 1978, originally as a building for the district court, by White Architects. The facade towards Södra Hamngatan is designed to blend in with neighboring late nineteenth century buildings. Kommerserådet commands a long stretch of the facade towards Drottninggatan, where an arcade faces the street. The arcade offers welcome protection from the weather, but the uniform expression coupled with its length and lack of activity gives the entire street the feeling of a back alley.

The current building is occupied with a gym on the first floor, a child and adolescent psychiatric reception on the second floor and four floors of housing.

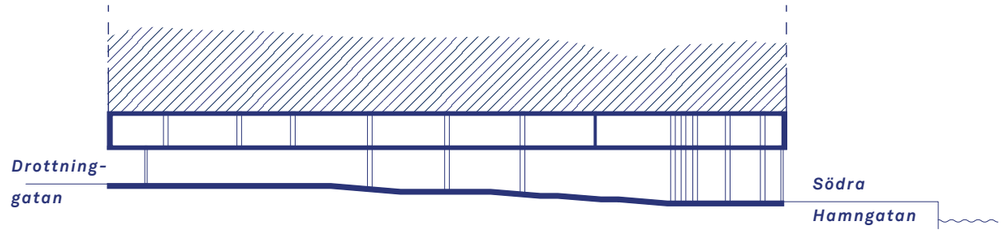


Figure 20. **Section through chosen path, 1:500**

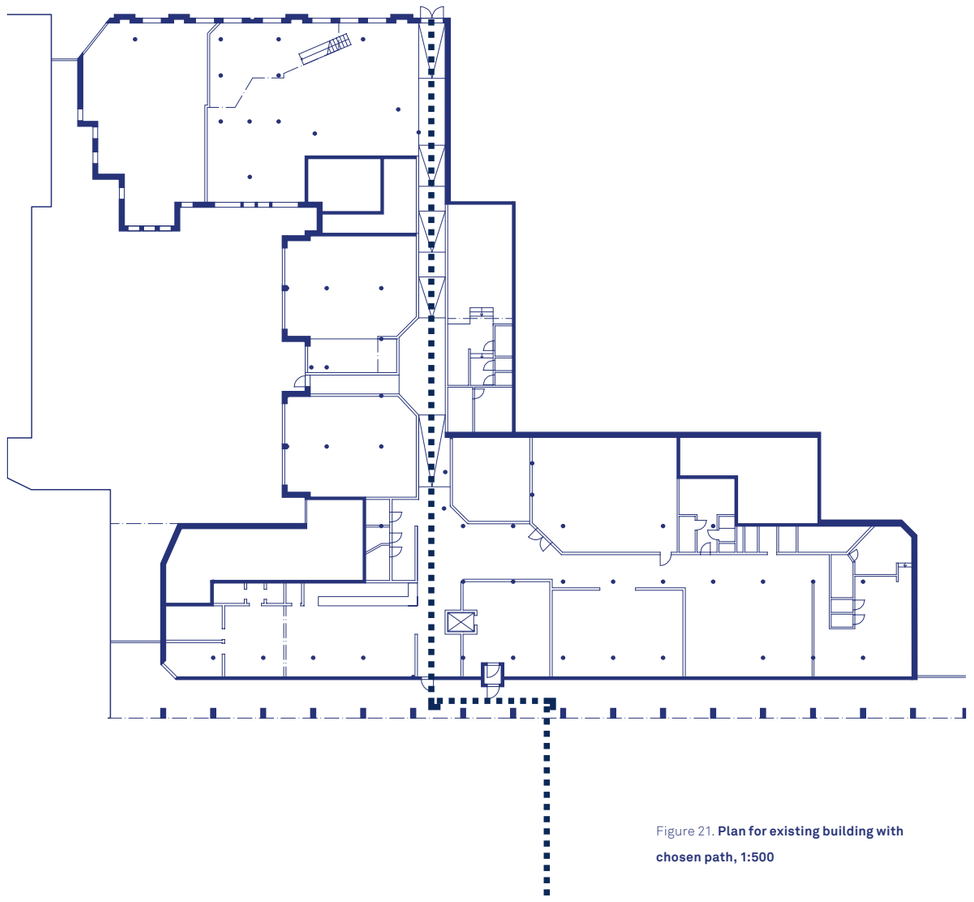


Figure 21. **Plan for existing building with chosen path, 1:500**

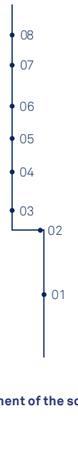
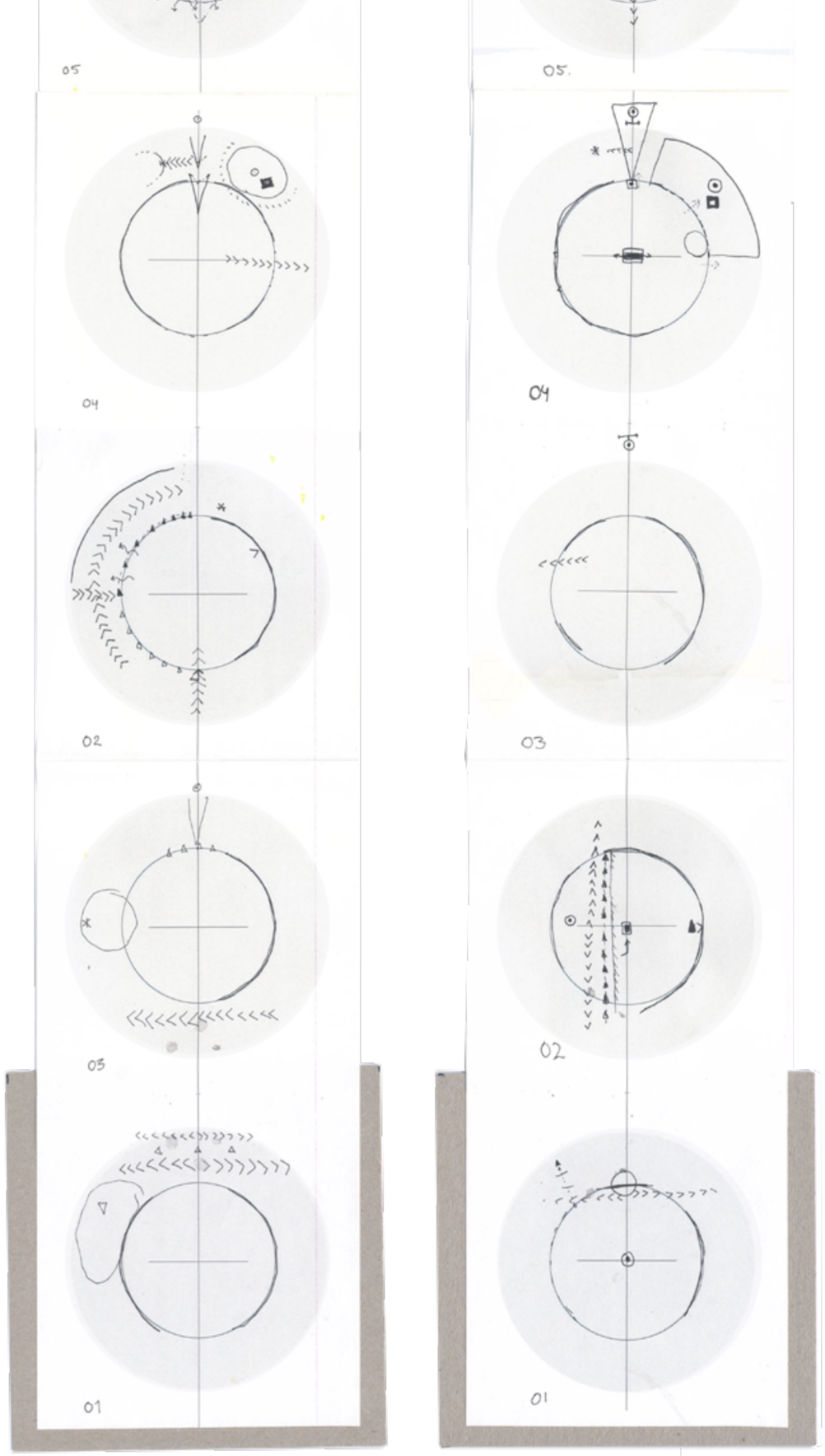
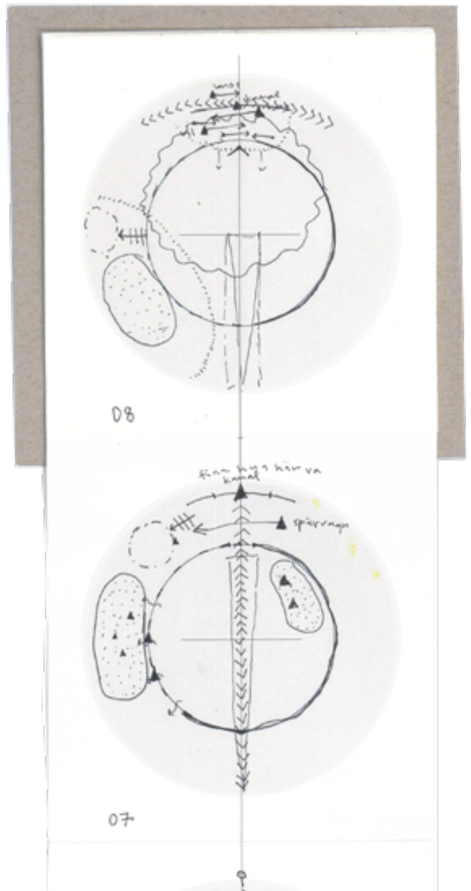


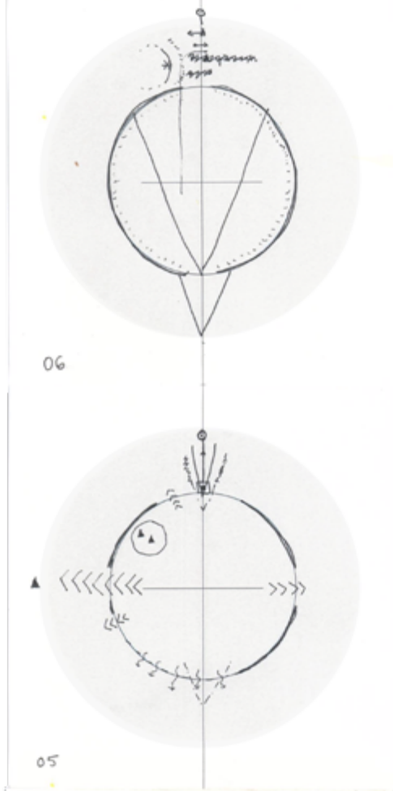
Figure 22. **Placement of the scenes along the path**

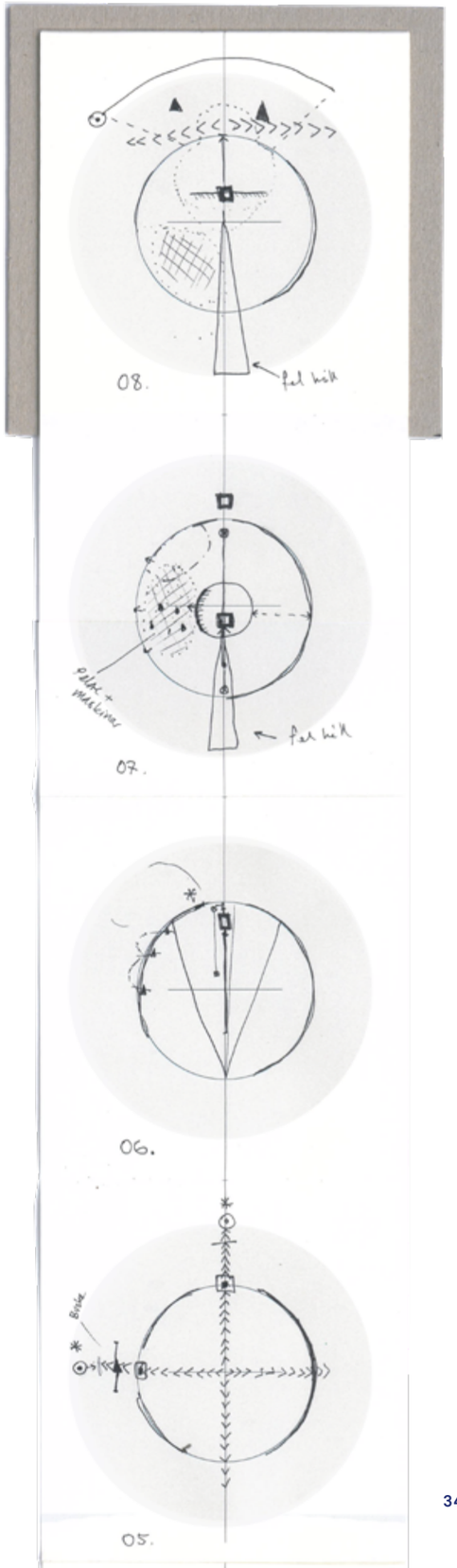
The transcription of the existing building shows a sequence with very little connection to primary spaces and limited excitement along the path with the exception of scene 07-08. The path directs the notator straight on towards a constant light at the end of the sequence. It might be noted that the exit at the end of the sequence does not, in the current building, actually lead out on the street as it is only an emergency exit, which leads to some disappointment.

Figure 23. **Notation sequence of existing building, by two different notators.**









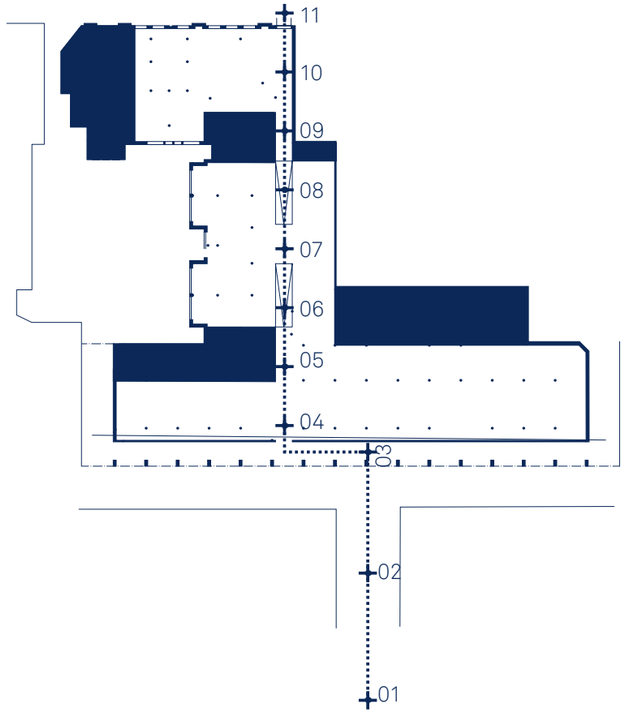


Figure 24. **Set scenes in the sequence**

In order too design a space using the notation system, the methodology from the first part had to be reversed. In the first part of the thesis, the notations are used to describe the individual scenes first, which then build an understanding of the whole. In the second part one needs to start from the sequence in order to formulate each scene.

Using the transcription of the existing building, but discarding some less rigid information such as inner walls, a sequence is outlined. The number of scenes was raised from the transcribed eight to eleven to be able to explain the detected potentials of the building as well as include some outdoor scenes to the sequence.

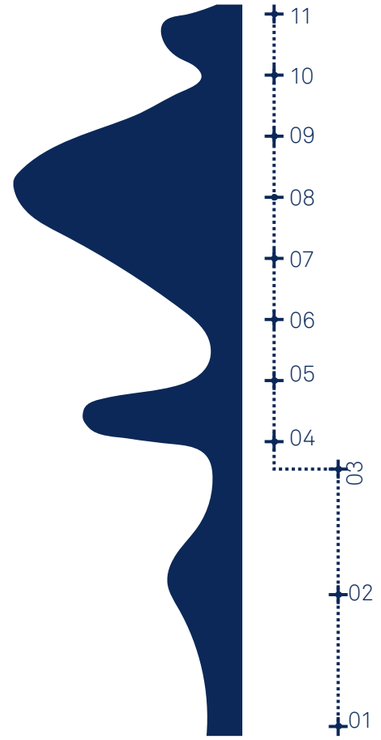


Figure 25. **Schematic path with scenes and dramaturgic curve**

Dramaturgy

The aim of the design part of this thesis is to create an engaging dramaturgy along the path. The sought after effect of the sequence is something that engages the visitor. To achieve the intended meaning and intensity of each scene, this thesis lends ideas from Eisenstein's Montage theories. Eisenstein presents five cutting techniques to create meaning through a combination of film frames.

One of the five techniques he calls Intellectual Montage. Here, the cutting between images with unrelated meaning together create a connection in the mind of the viewer (Eisenstein & Leyda, 1977). Frames that, taken on their own, would not give the same implications. In the design of the building, this theory is used to strengthen the collected impression of each scene and the building sequence as a whole.

Working from a general desired feeling and atmosphere for the building, a dramaturgical curve is chosen. The dramaturgy is decided by the intensity and dynamics of the scenes, put together on top of each other.

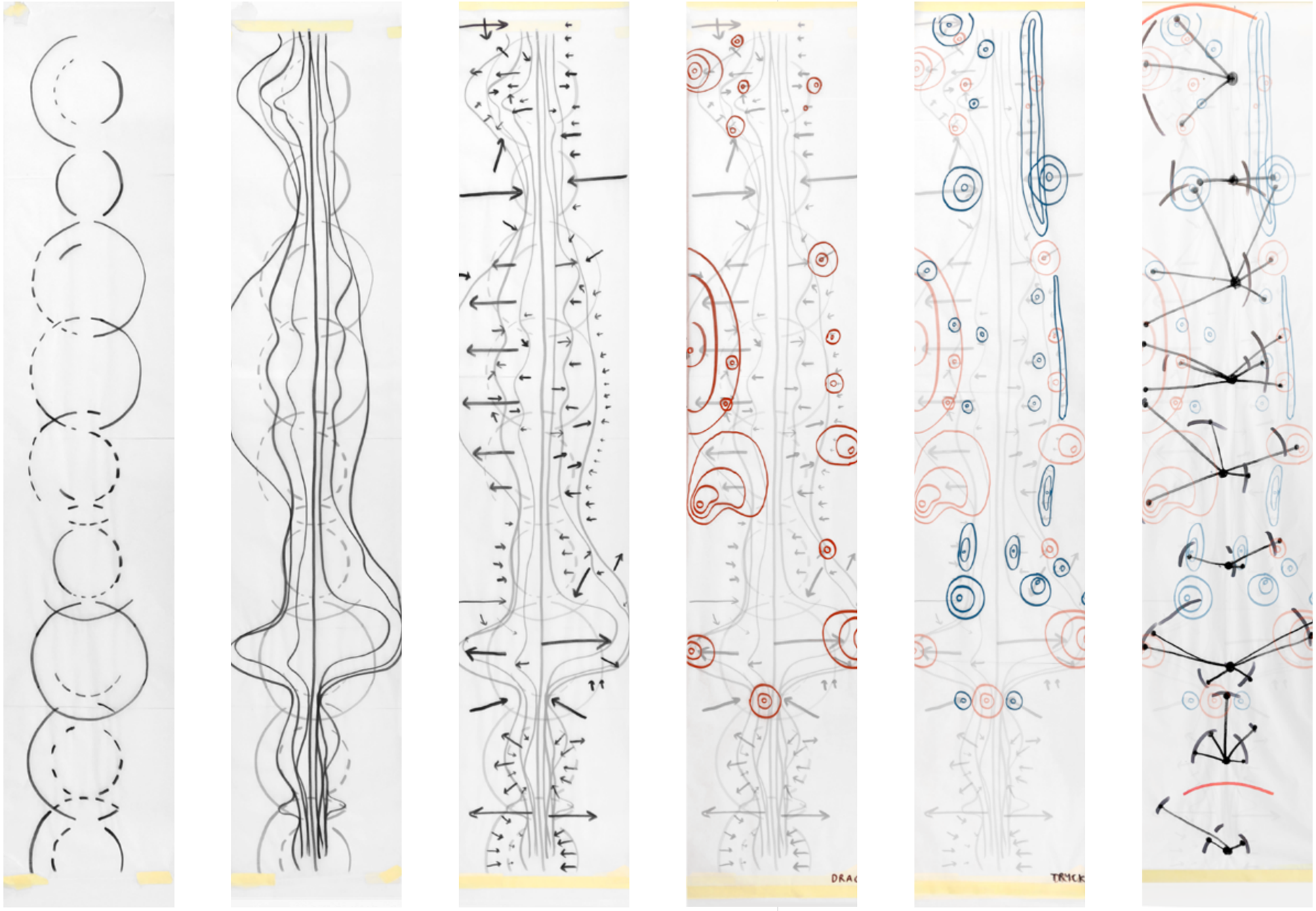


Figure 26. **Sequence sketches**

Designing the narrative of the building, it is necessary to constantly alter the focus from the sequence to the scenes, and back to the sequence. Looking at the sequence, it is possible to design the path in its entirety. To find a visual representation of the early intentions for the sequence, a sequence oriented notation was added to the previously developed NS.

The construction of a new sequence was made in layers, starting with the boundaries of each scene, based on what is already there and what dramatic effects could be achieved.

Then a “flow” was sketched for the sequence. Flow in this case means a collection of directions in the space, from movements, shapes and focus points. This flow is based on the boundaries, so the sketched flow is combining the potential of the space with the intended dramaturgy.

To imagine what could have generated this flow, force vectors were sketched that respond to the flow curves as well as to the existing forms. The vectors were then divided into push and pull force fields, shown in red and blue.

To introduce some symbols from the notation system as presented earlier, focus points based on all the other layers were placed.

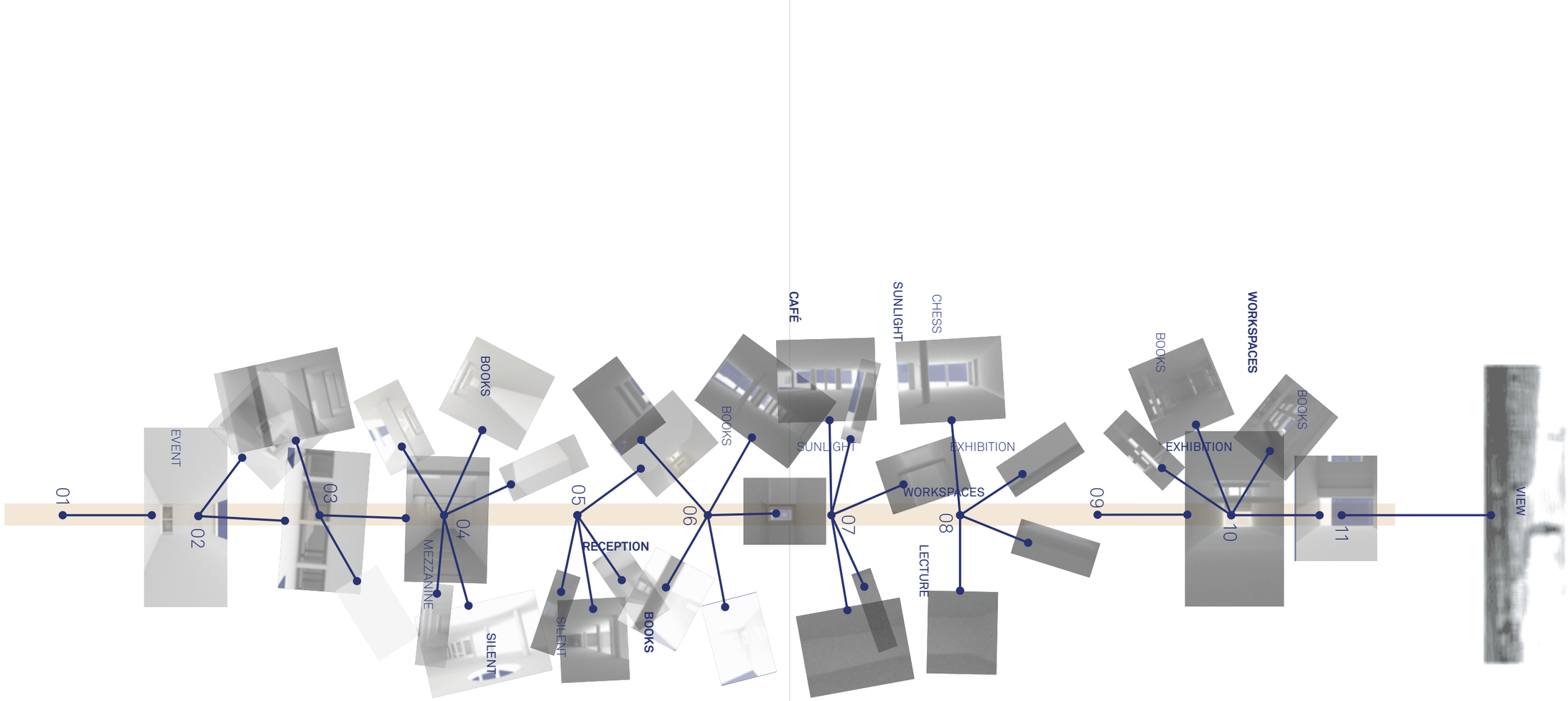


Figure 27. **Diagram frames connected to each scene as well as some proposed program**

Setting the scene

A narrative is created by placing programmatic functions in relation to the imagined dramaturgy.

The sequence sketches design the flow and the direction of the building, as well as dictates the initial placement of the scenes' components. In this diagram, each scene has been connected to a number of *frames*, placed relative to each scene and its primary and secondary spaces. This is used to set a program and to create the narrative of a library along the path.

"Frame" is used to signify a part of the scene represented by an image, i.e. a frame in a movie

Sequence model

Figure 29. **The sequence is joined together by the path**

The model consists of eleven scenes, each with a number of frames or images depicting parts of the scene where the attention of the viewer is directed. In the middle of each scene is a notation base, where the scene can be read as a whole. Interpretative notations are layered on top of the frames to aid the reading between the central notation and the images.

Each scene is surrounded by two layers of images, symbolising the primary and secondary space. The overlapping of the images mimics the overlapping of spaces and shows the depth of each scene, hiding and highlighting elements.

The model shows the experience of space in a sequence. By constructing the scenes in a three dimensional physical model, the viewer is forced to partake of the design incrementally whilst being directed by the focus points. The memory of the previous space lets the viewer's imagination assemble the full image of the space. The viewer is unable to see the whole building from the birdview perspective that many architects usually design from.

Through the process of designing the library the model has been used as a mediator between the notations, the focus points as well as the sequence diagrams and the design.

Made to be flexible, the model is a tool in the design process rather than a final static model. The amount of scenes and the path is set, but the notations and the frames are exchangeable and moveable. The sequence model as a tool is useful, but it comes with an extensive startup process as there are many parts needed to be prepared before you can use it to sketch a space.

The model is created to be interacted with. Though the model itself cannot convey a phenomenological experience that engages all the senses, it adds a kinaesthetic understanding that invites the viewer to think about the space.

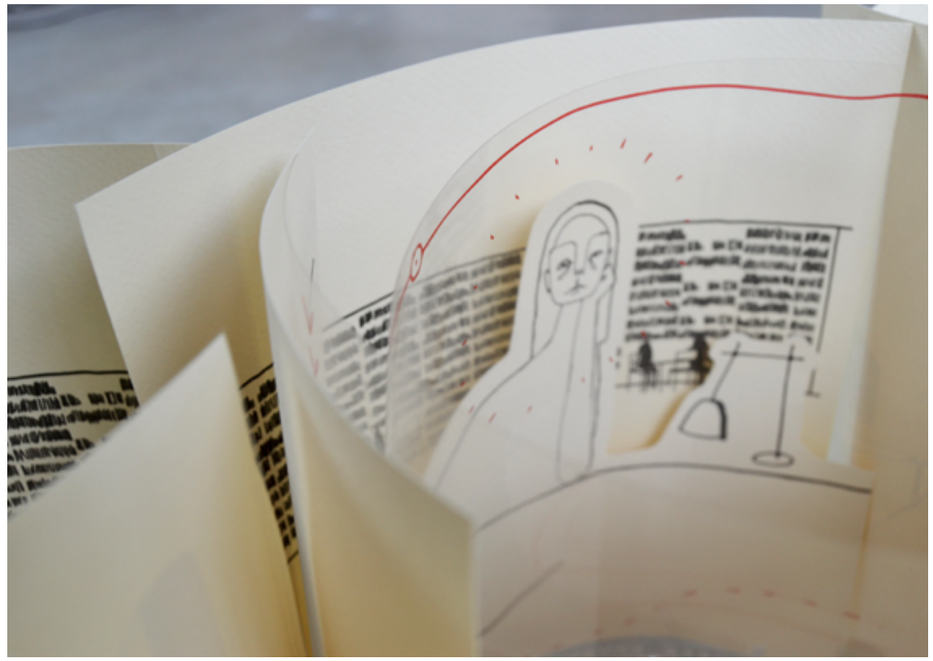


Figure 30. **The descriptive notations are printed on acrylic**

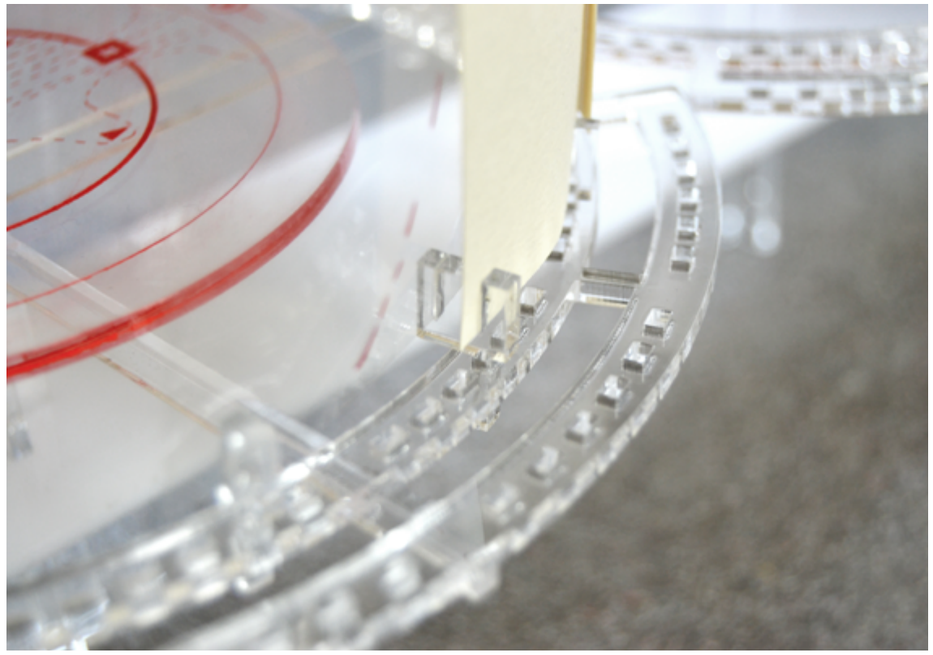


Figure 31. **The picture frames are fastened using moveable acrylic clips**

Reflection on part 2

The role of the sequence model is to present the Notation System as well as the resulting library design and to explain their connection to each other. The model illustrates how the focus points developed in the sequence diagram are translated into views along the path.

The model could have been further used as a design tool, by making the discs for each scene more flexible with removable paper layers allowing for a feedback loop between the NS and the model.

There is also a potential in the model to move parts around more than what time allowed during the thesis. Exploring the model further in this way could have presented unforeseen possibilities.

The power of the sequence model is that it does give an immersive experience of the library without forcing the architect to make premature decisions, such as exact shapes and measurements. The model enables the architect to stress what is most important in that scene, forcing them to prioritize the experience.

With the developed design method, an infinite amount of alternatives could be generated for each scene, so the architect needs to use their intuition to guide them in which ones to try. The developed method is not an algorithm but a series of guided operations, each of them demanding decisions of the architect. The NS's creation and implementation has undoubtedly affected the resulting design, but it is difficult to judge how much, as the method still requires individual design choices.

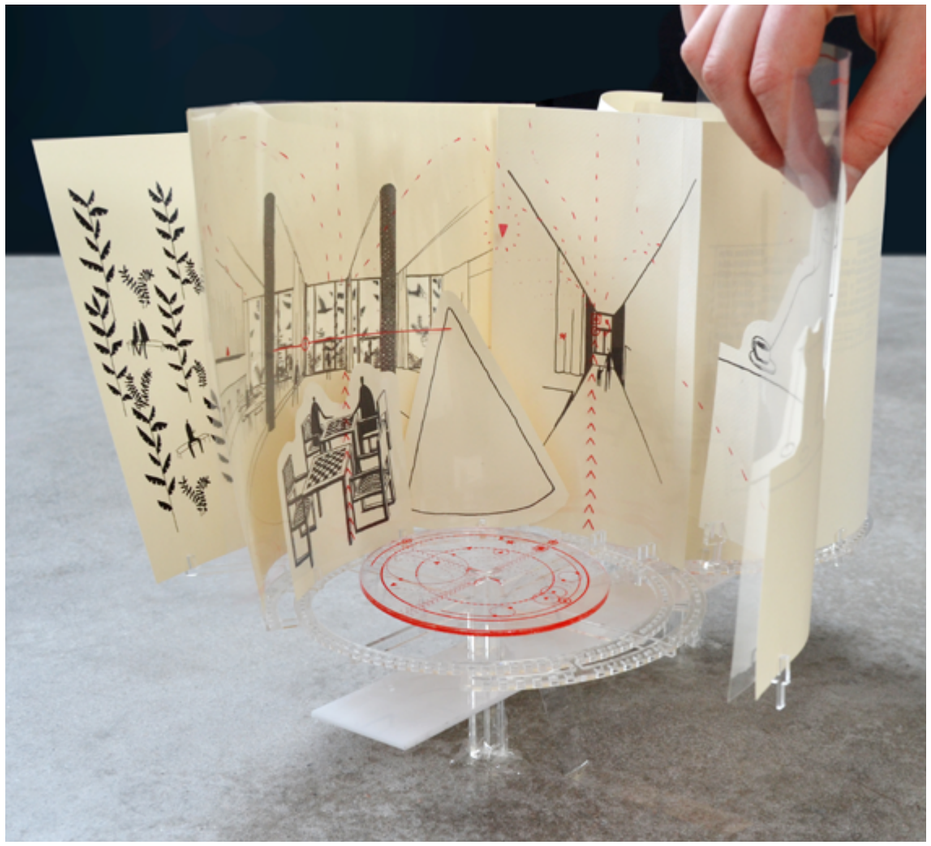


Figure 32. **Part of the sequence model**

Scenes from the sequence model

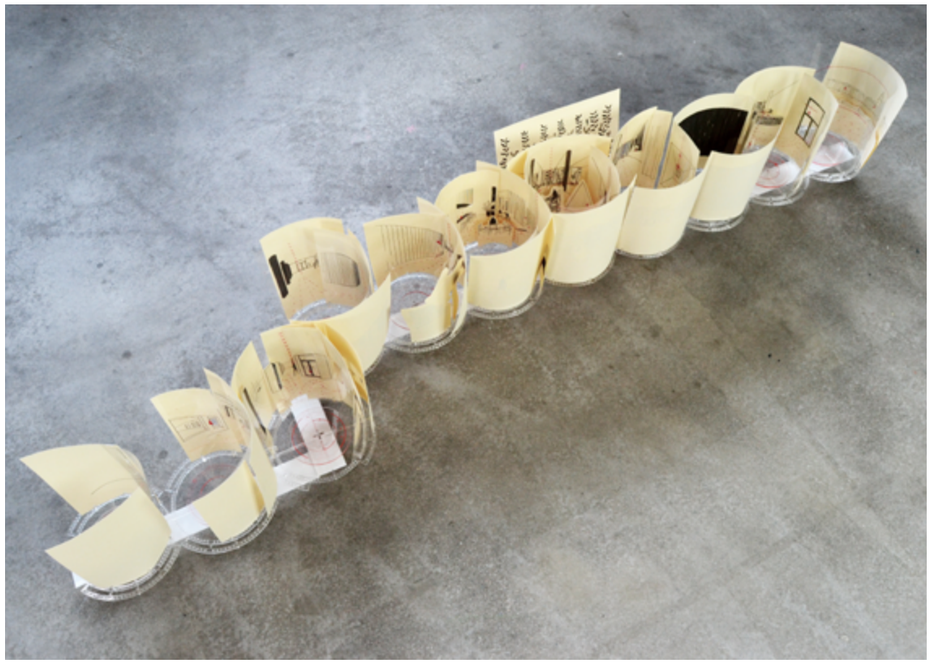


Figure 33. **The sequence model**

Following is a walk through of all the eleven scenes of the library. The sequence begins at Lilla Kyrkogatan, halfway from the Cathedral to Kommerserådet, passes through Kommerserådet and ends on the other side facing the canal.

There are for each scene some close up photos from the model, which do not convey completely the expression of each modelled scene, but gives an idea of the content of each of them.

The scenes should be read as a sequence, imagining each of them in relation to the previous one and also keeping in mind the expectation for the next space.

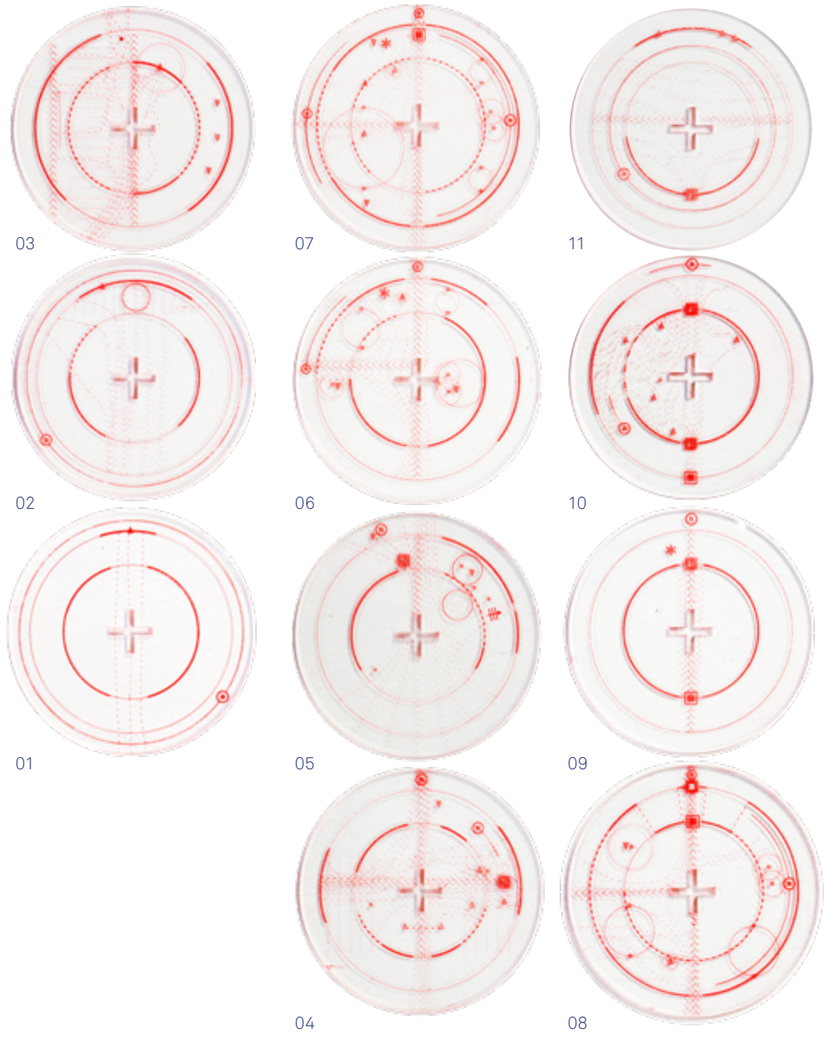
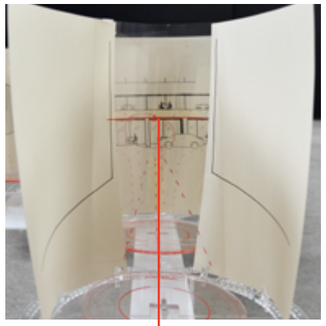
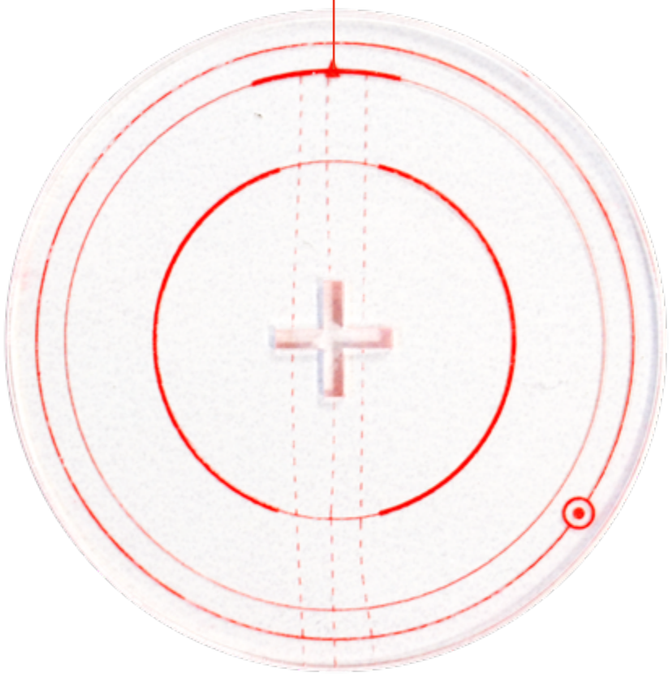


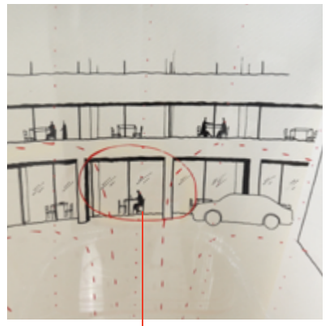
Figure 34. **Notations of the scenes of the sequence**

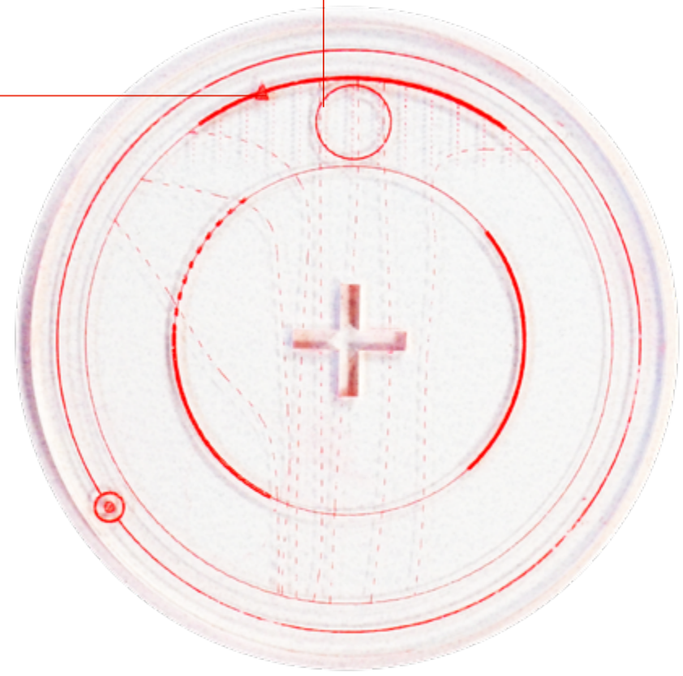




01

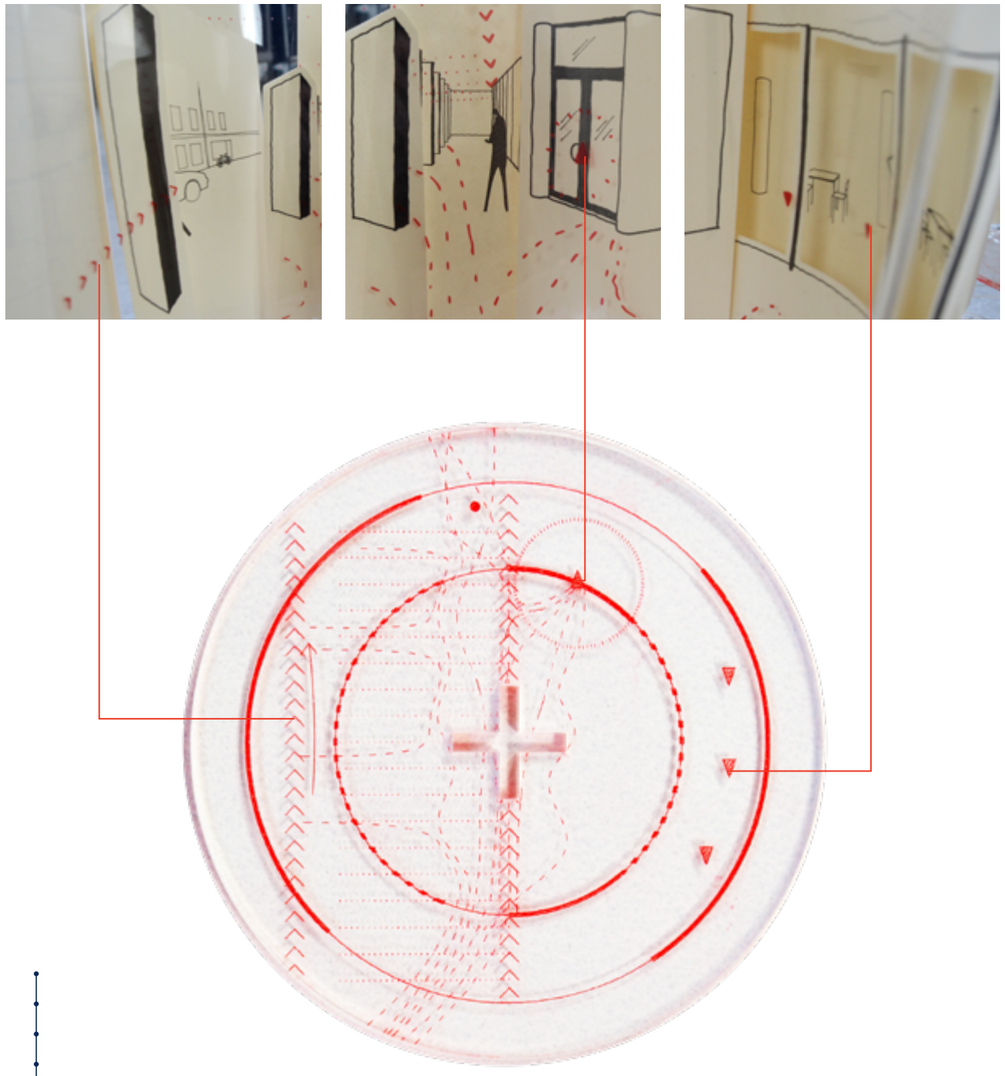
In the first scene, you are seeing the library at the end of the street for the first time. In the notation, the direction is straight forward, with the facade notated as a wide object.





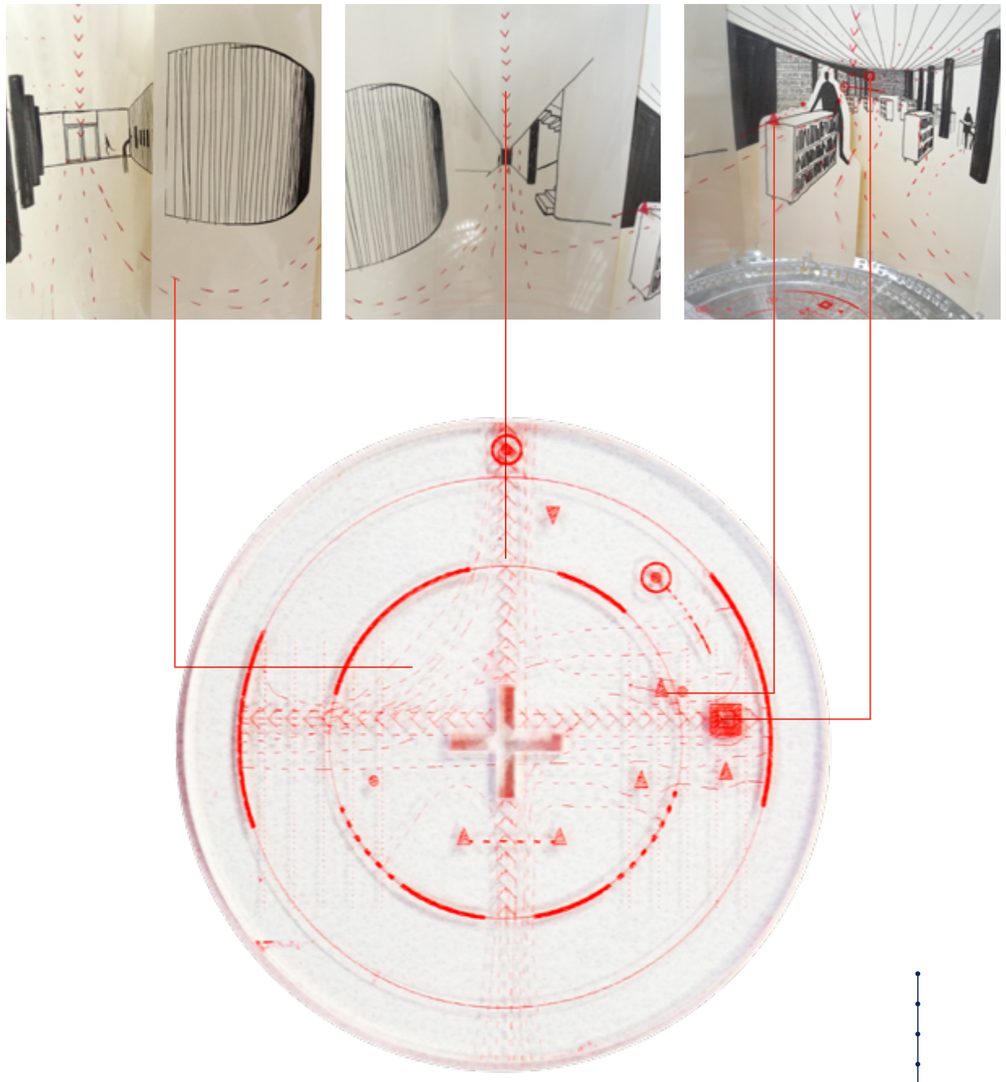
02

The second scene is revealing more of the facade, with a glimpse of what is inside. The building to your left is slightly transparent enabling you to take note of the library entrance, even though it is behind the corner. The facade lends a rhythm to the street.



03

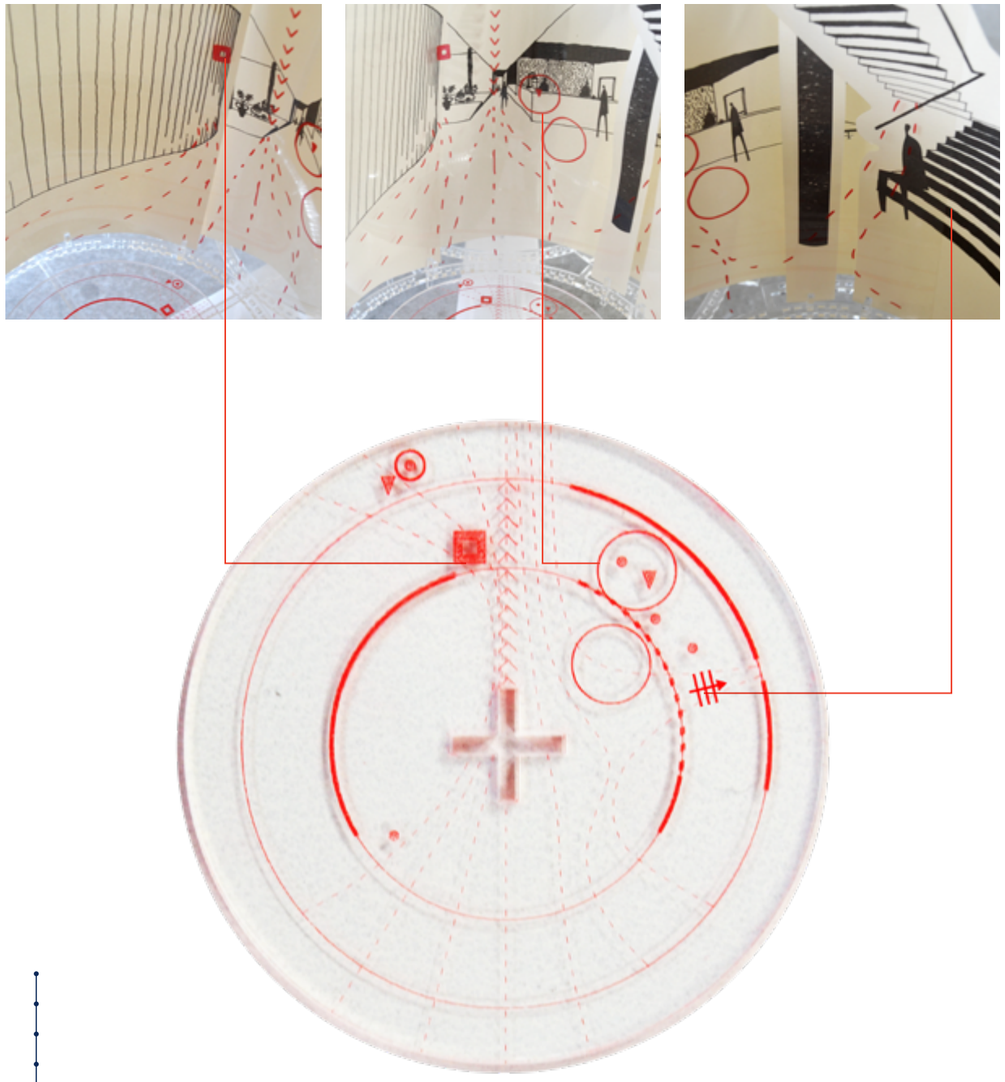
In scene 03 you have entered the arcade and are turning left. The space is directed forward and rhythmic because of the repetition of pillars next to you, remembered from scene 02. The openings of the facade to your right allows your primary space to dip into the room within - but the main focus is the door ahead of you.



04

The first scene of the library is an intense one. The narrative of a library is books and reading and therefore upon entering you are almost being hit by a rolling bookshelf in full speed, pushed by a librarian.

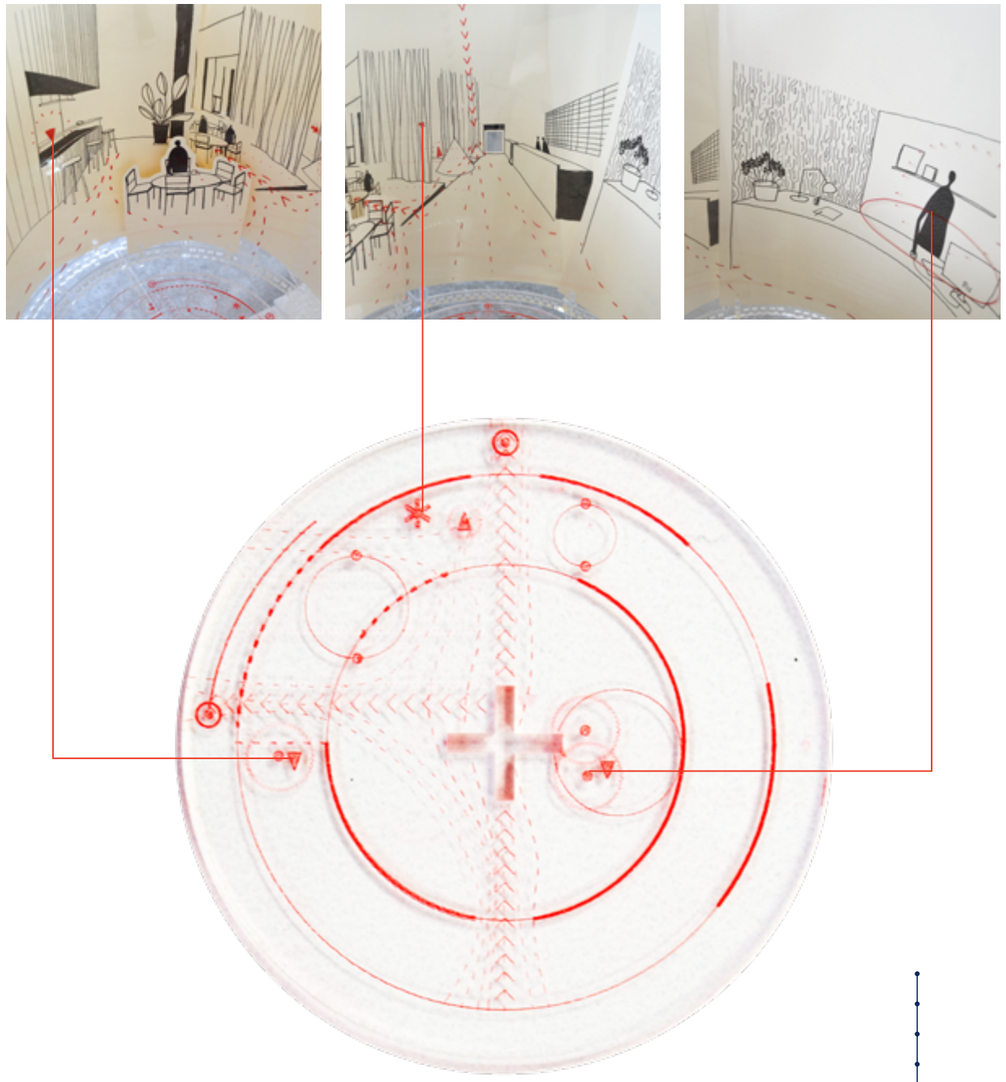
You are simultaneously part of two rooms; one of the corridor - the path that you are following - and also the wide book and exhibition room that you are passing through. The direction created by the rooms' elongated shapes and the collision of the two directions create an intensity and awareness to your surroundings.



05

Moving forward on the path and leaving the open space of scene 04 - this scene is less intense than the previous one.

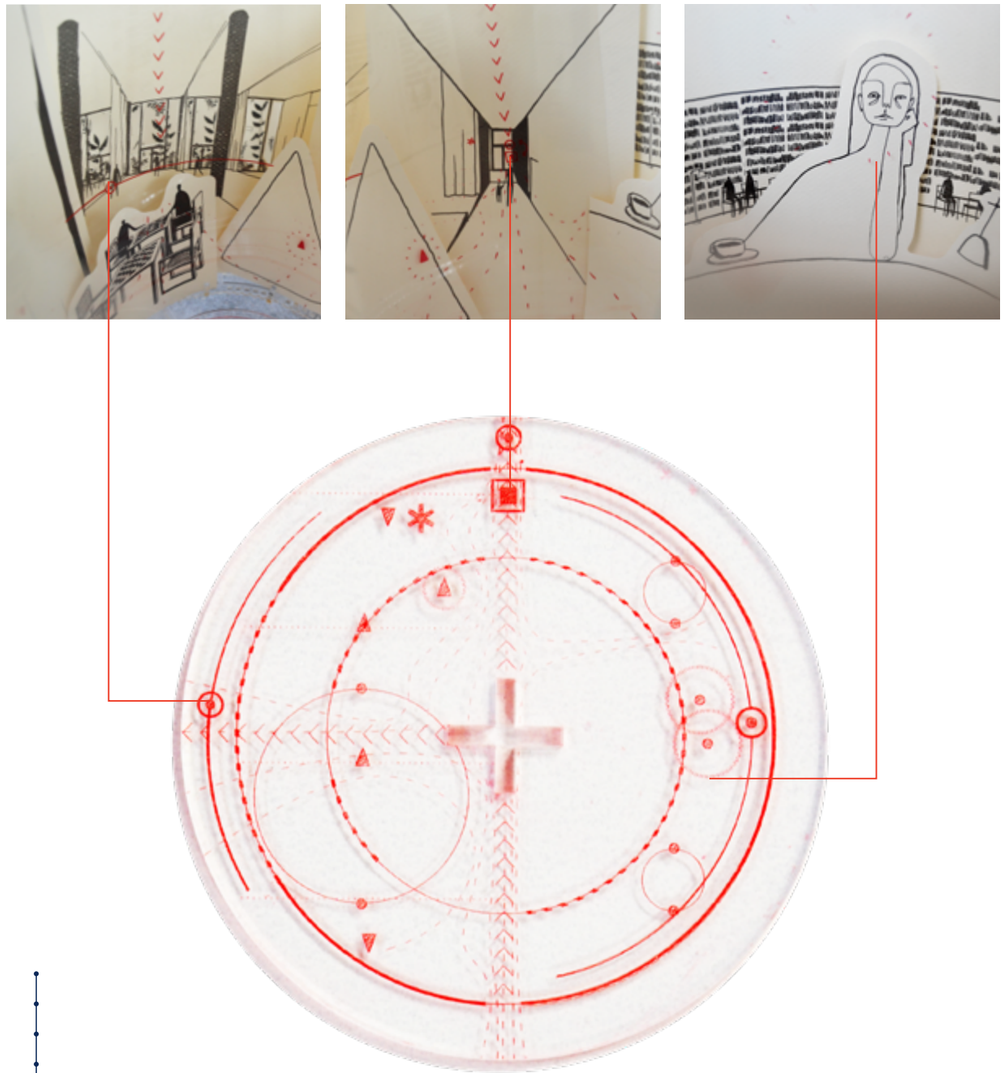
On the right side of the path, there is a reception ahead and a staircase. The subspaces visible are the spaces created by the reception itself and the reception area. You are guided on by curiosity: a curved wall is leading you forward, as well as seeing the space open up. You are hearing things going around the turn, enforcing this direction.



06

And behind the corner is a cafe! Directly to your right, and close to you, is a member of the staff. The closeness and the attention affects you as a kind of repelling force, causing you to move on as you do not need help with anything.You are in a large bright space, with a lot of activity and people. Curtains are restricting you from taking in the entire space at once though, saving some impressions for further down the path, as well as sectioning of the room.

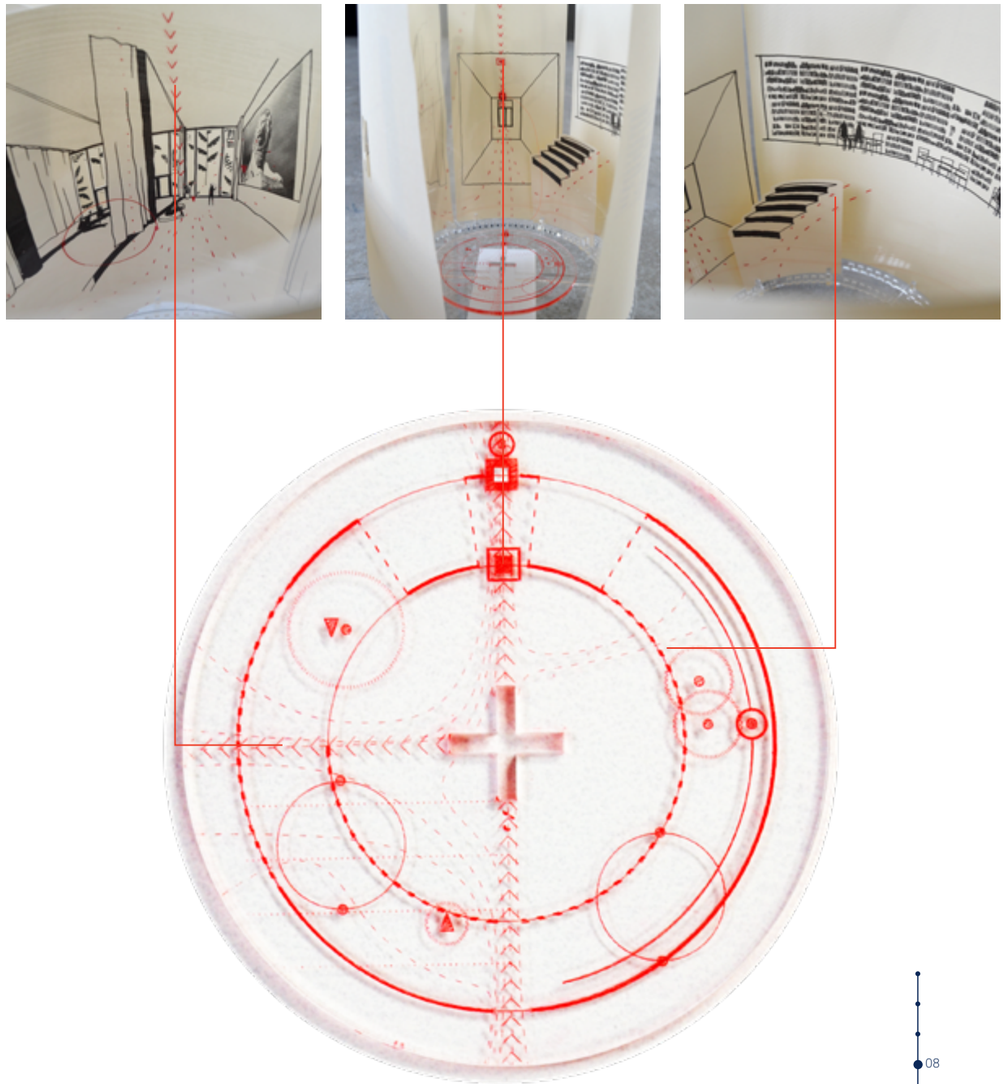
You start to see the light at the end of the corridor, which leads you along the path.



07

You are now in the center of the room and you can perceive most of it, although you can tell that there is some event ahead of you still covered by the curtains and hidden. The curtains and the pillars are adding a rhythm to the space, and focusing the direction of the room to your left - where you see, in the tertiary space, a garden.

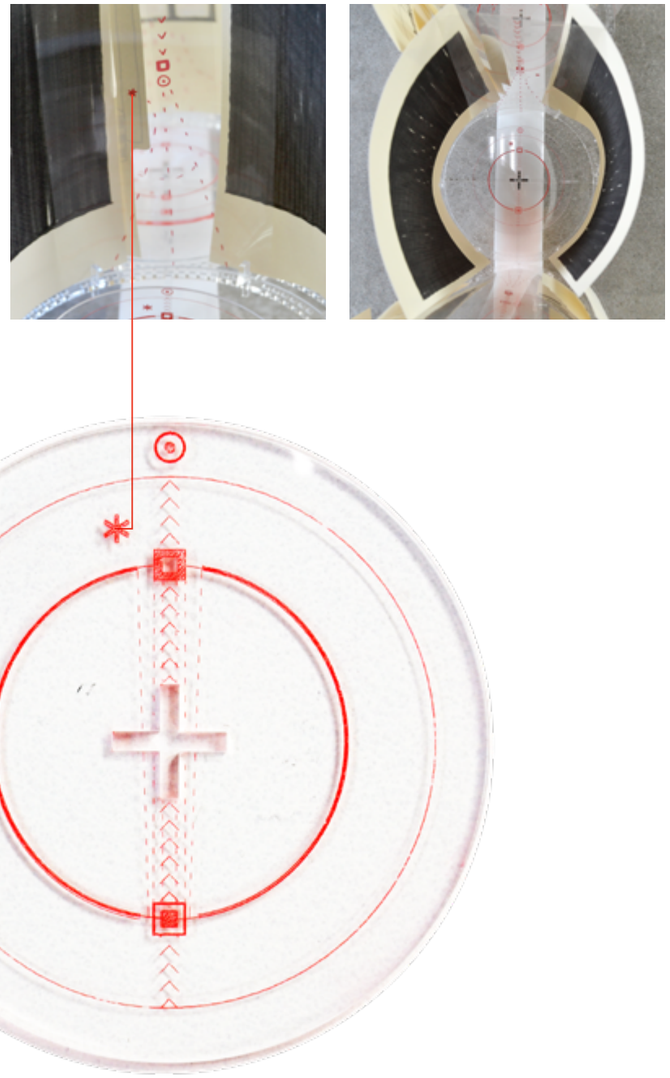
Again someone directly to your right, close by, drinking her coffee and looking at people passing. As in the previous scene, you feel like you might be imposing on her space and hurry on.



08

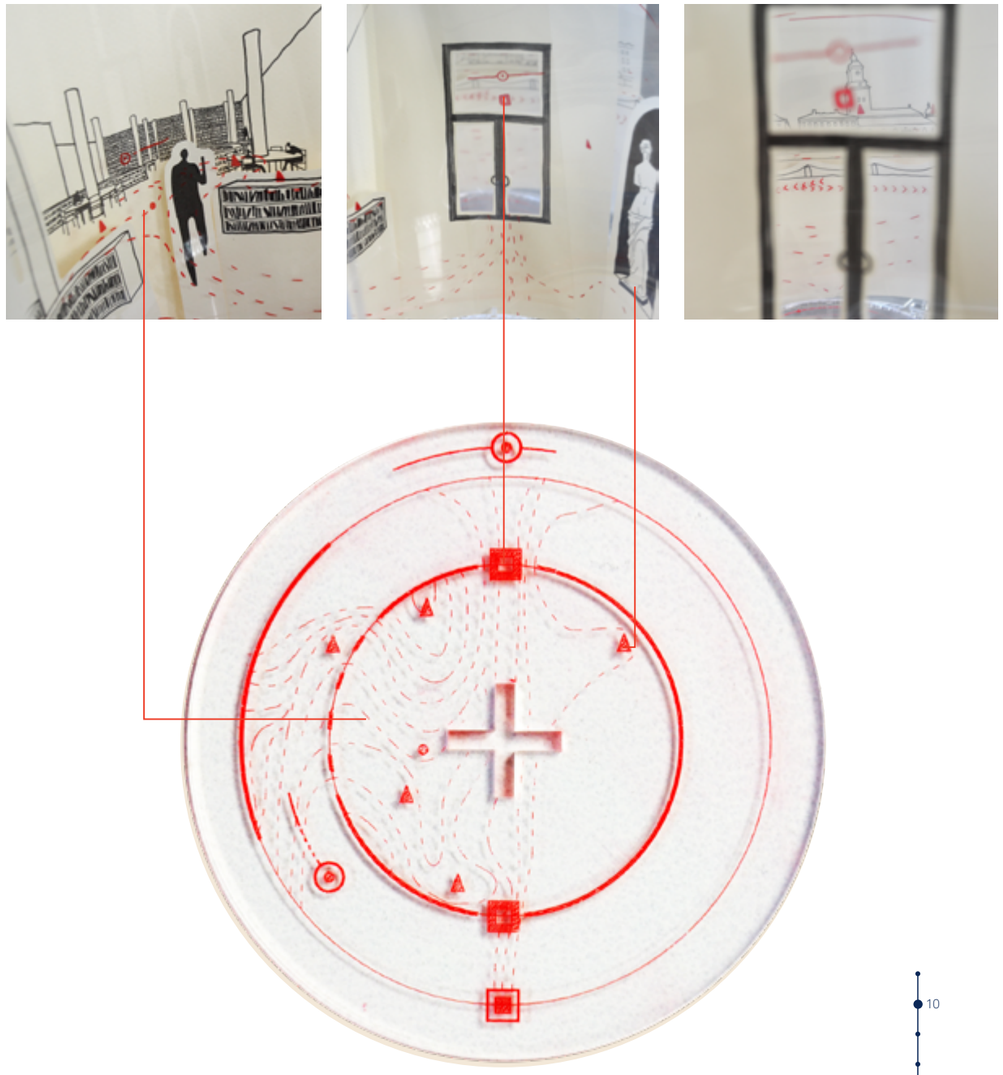
At the end of the large space, you finally see what the commotion is about; a screening of Eisenstein's Battleship Potemkin!

In front, you see the space closing in but you imagine it also opening up again further on. You can sense people you have passed as a mass, a field of people.



09

In scene 09, there is a patch of calm. It is a corridor, leading towards the light, with a hint of something around the corner.



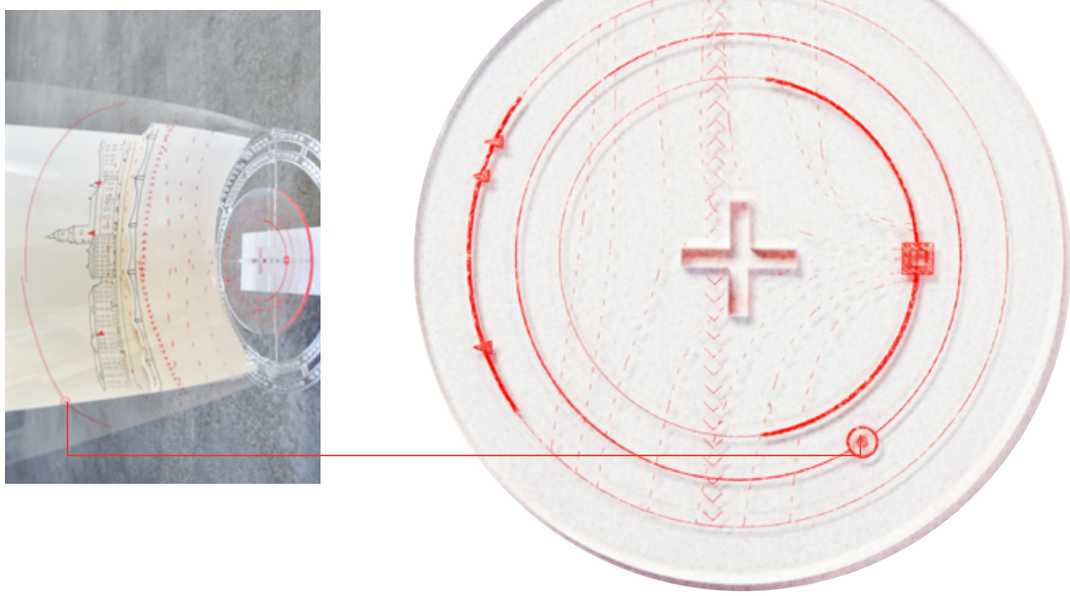
10

Just as you thought you had reached the end of the path, there is a final surprise: a large reading room. In this space there is no clear direction.

A winding flow is generated by the curved bookshelves and of the people moving through it. You can see a sunlit Gothenburg outside the door ahead of you.

Unrolled scenes

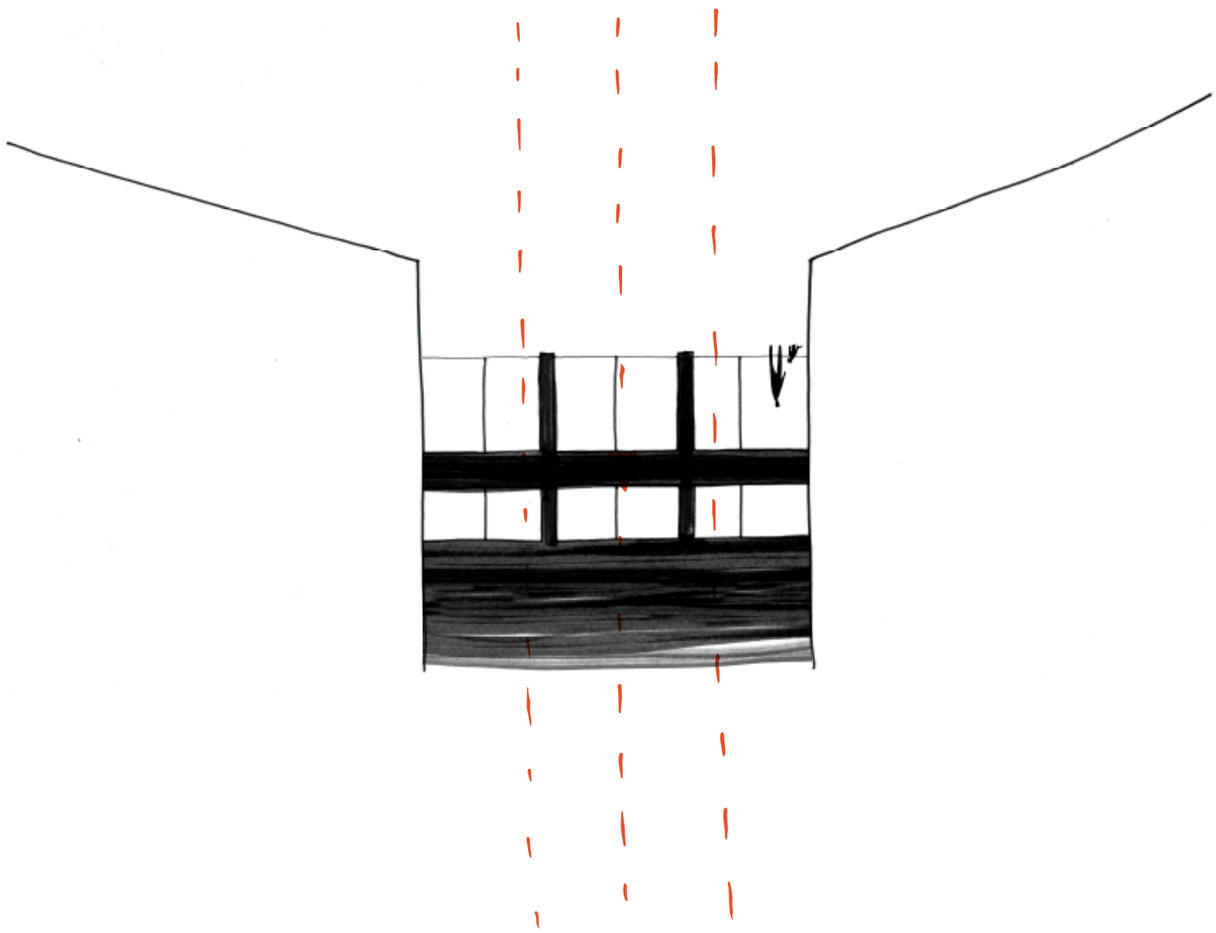
The following pages contain the montages from the sequence model, remade as two dimensional images.



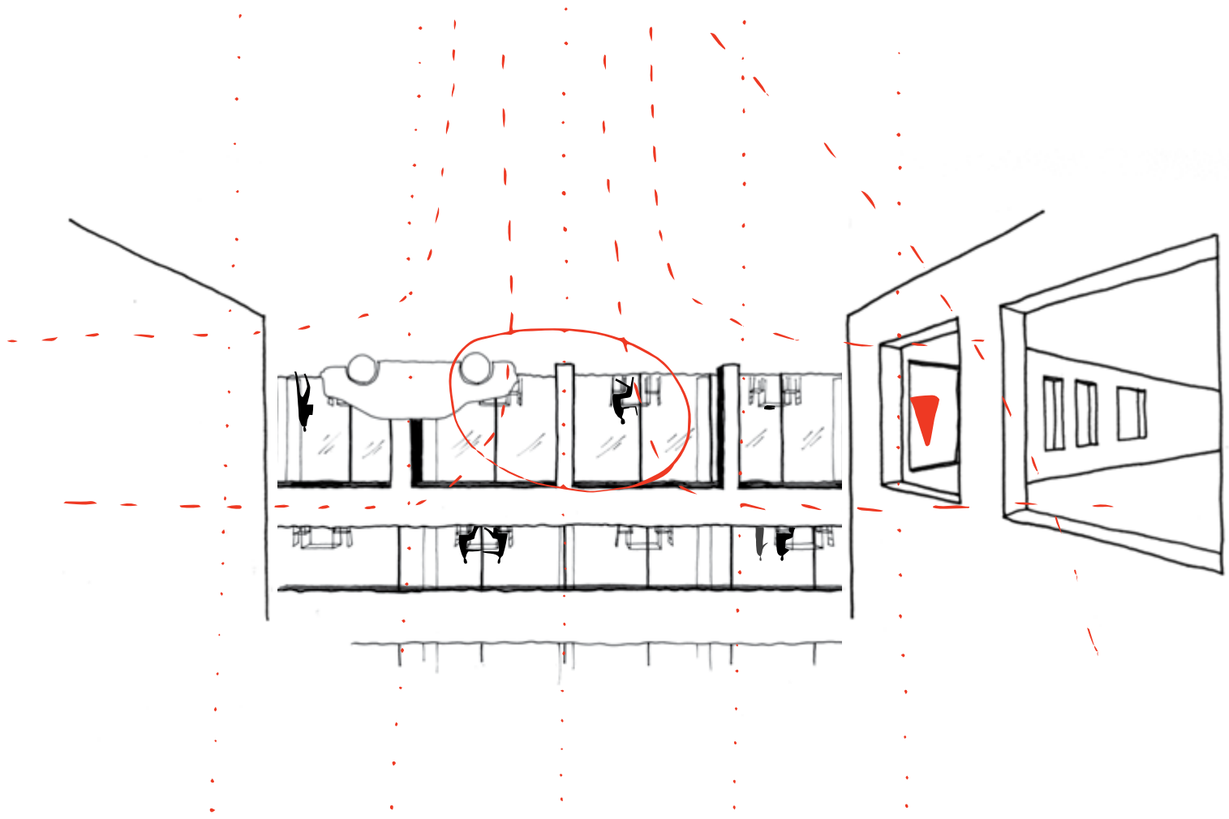
11

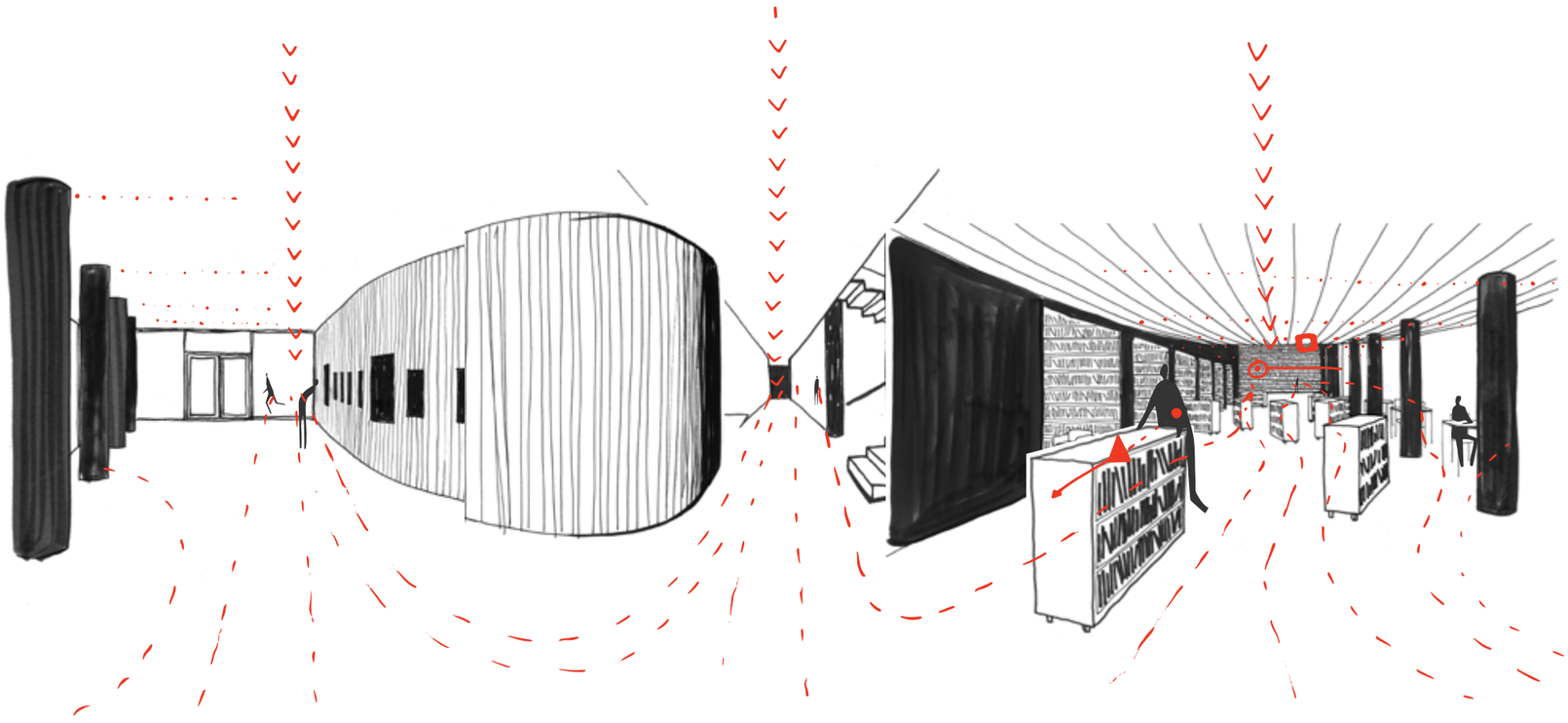
You exit the library towards the canal and the Gothenburg cityscape. The space opens up and there is sun all around.

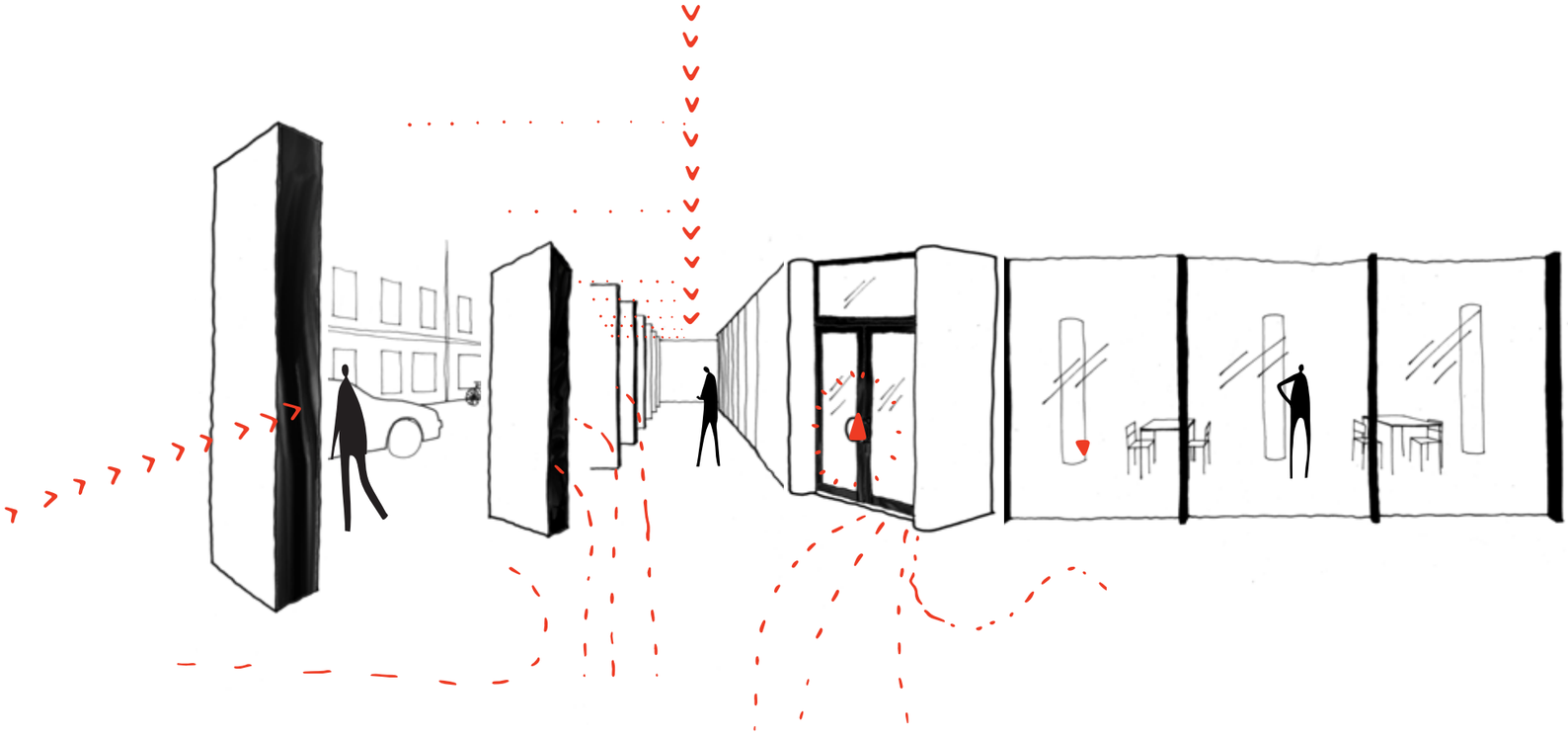
01

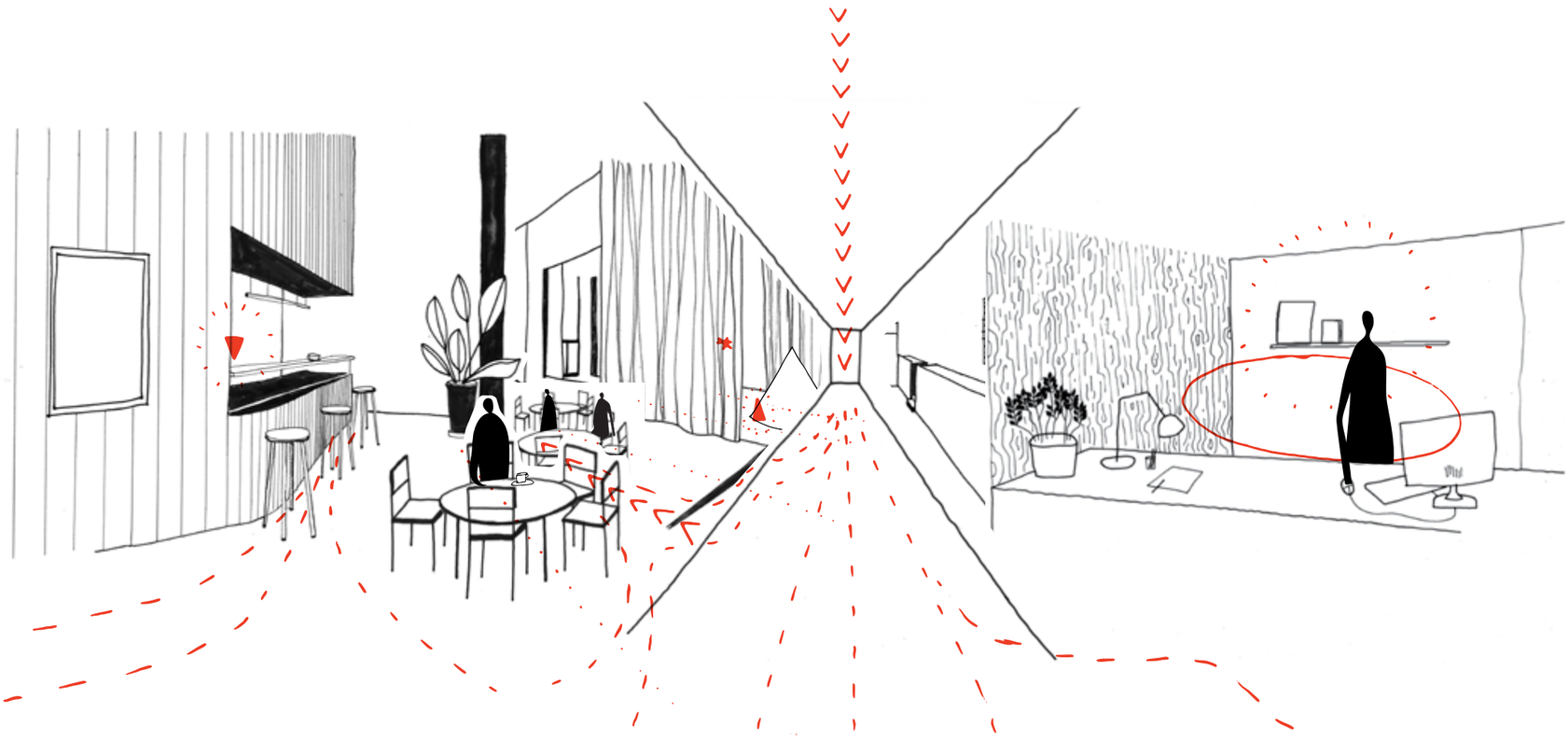


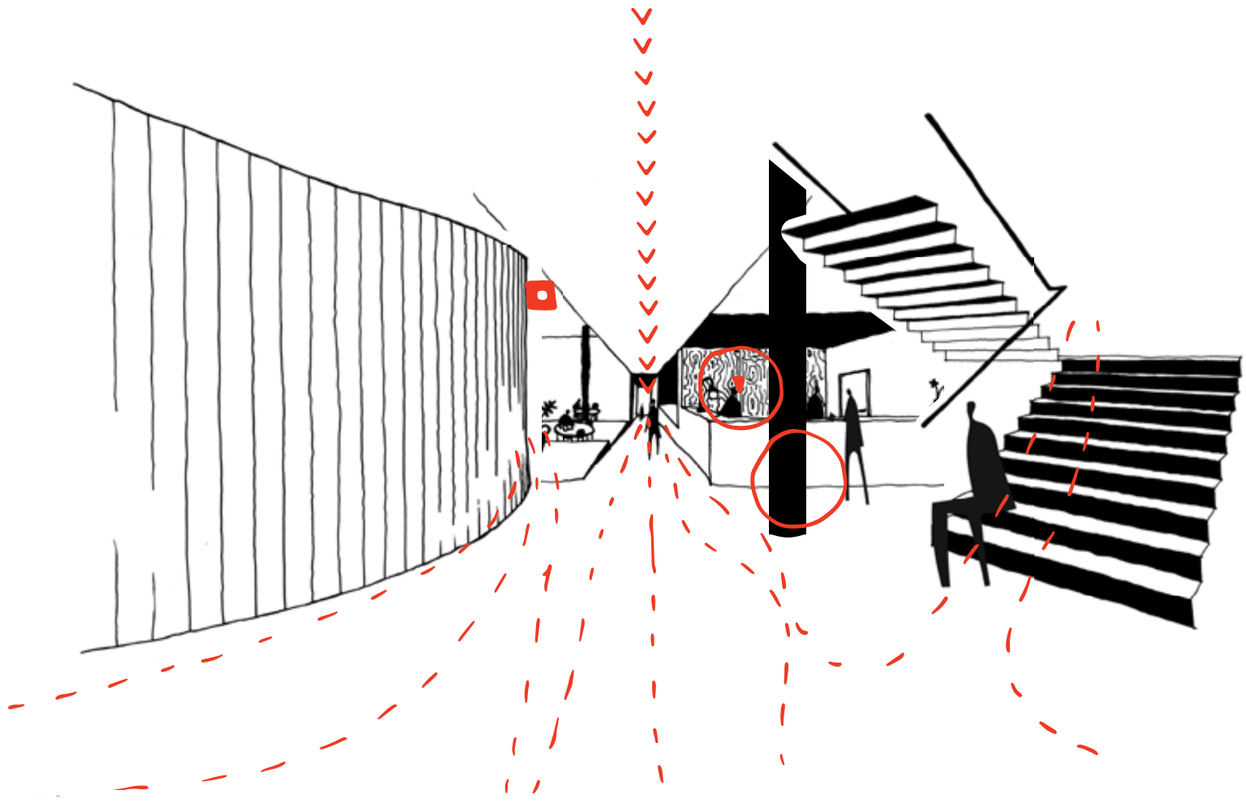
02

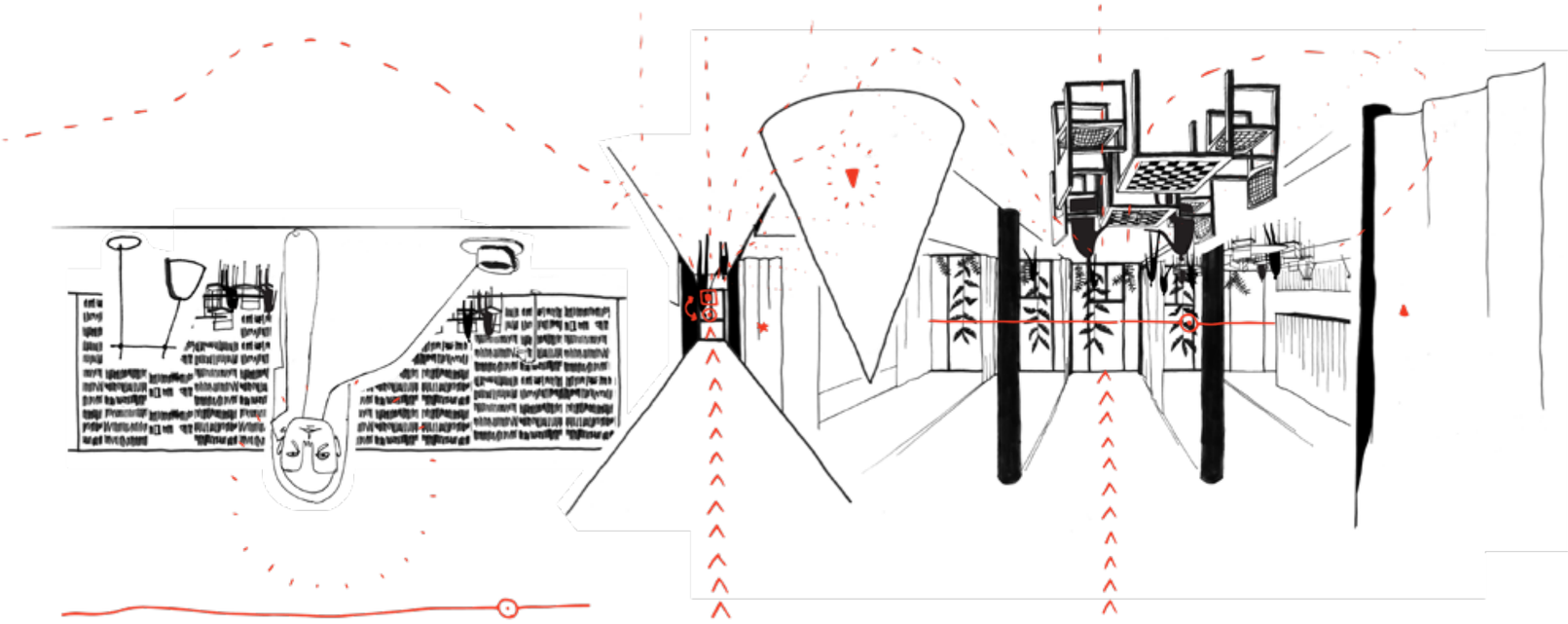


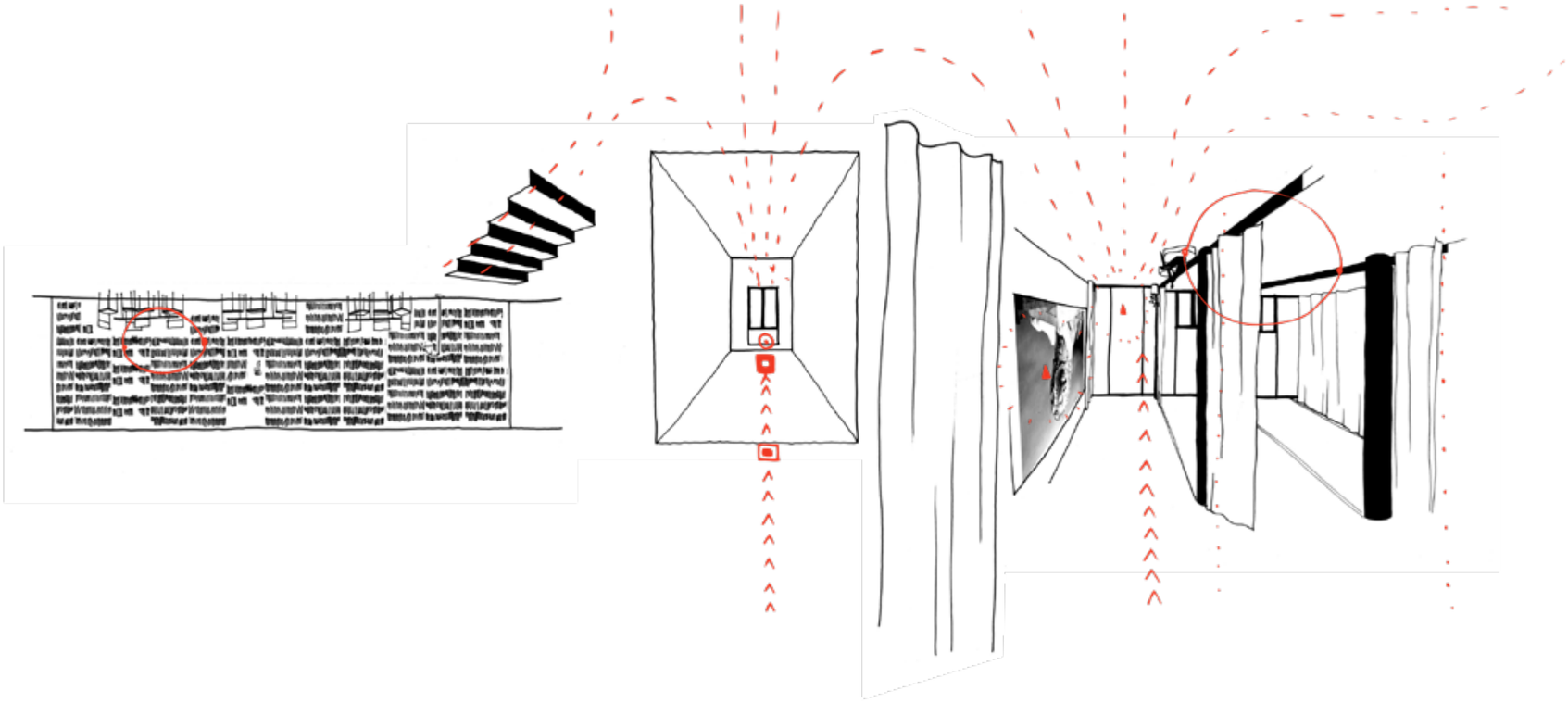


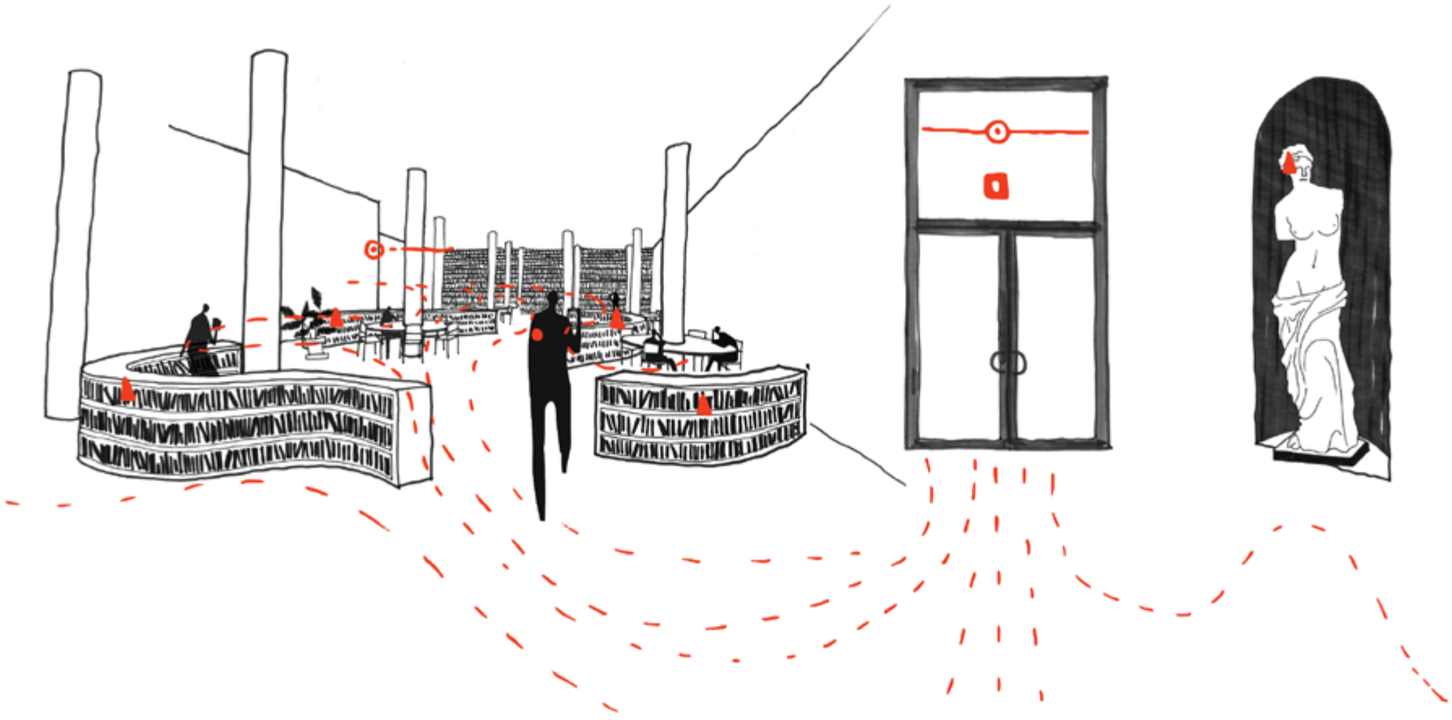


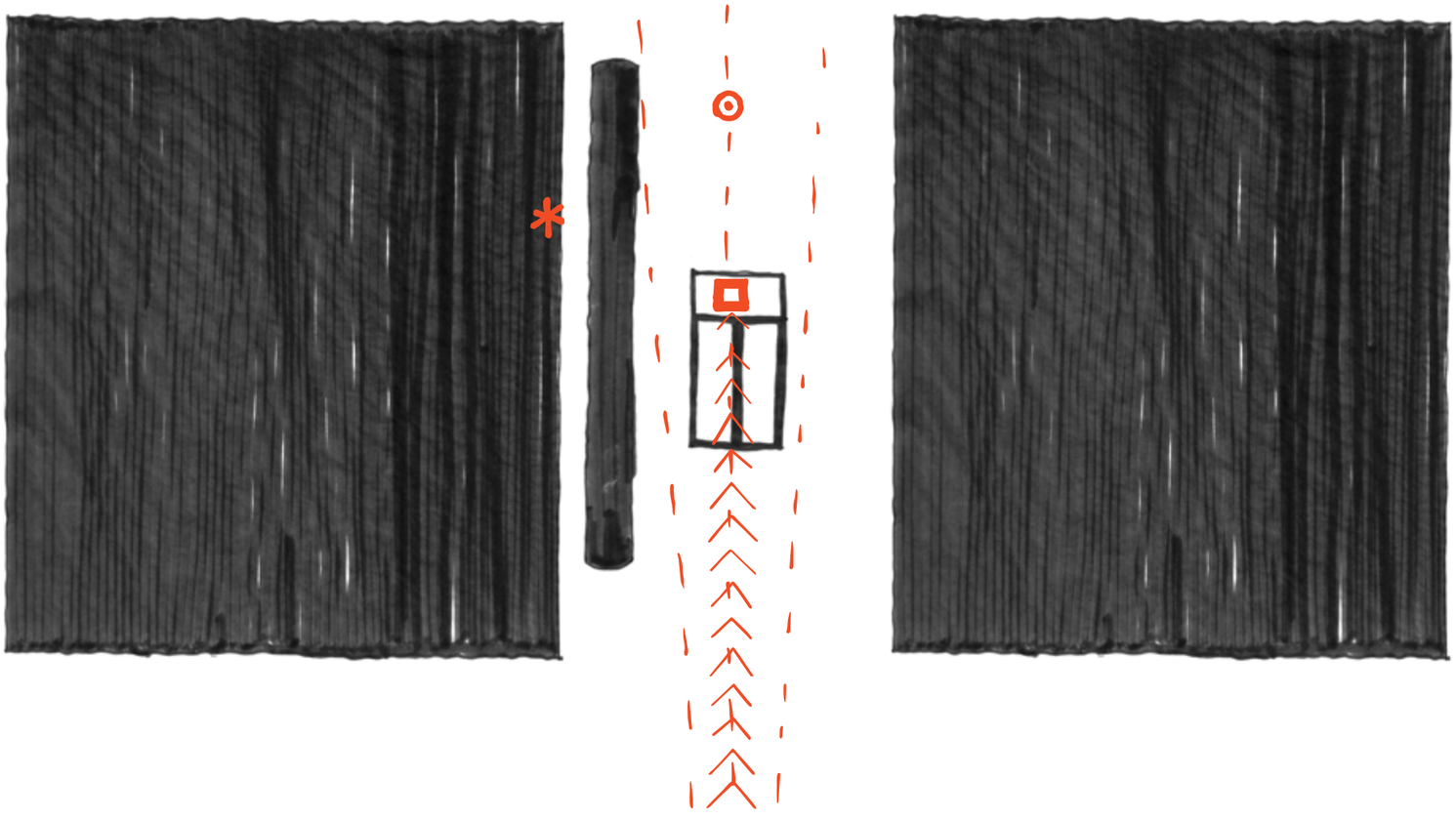


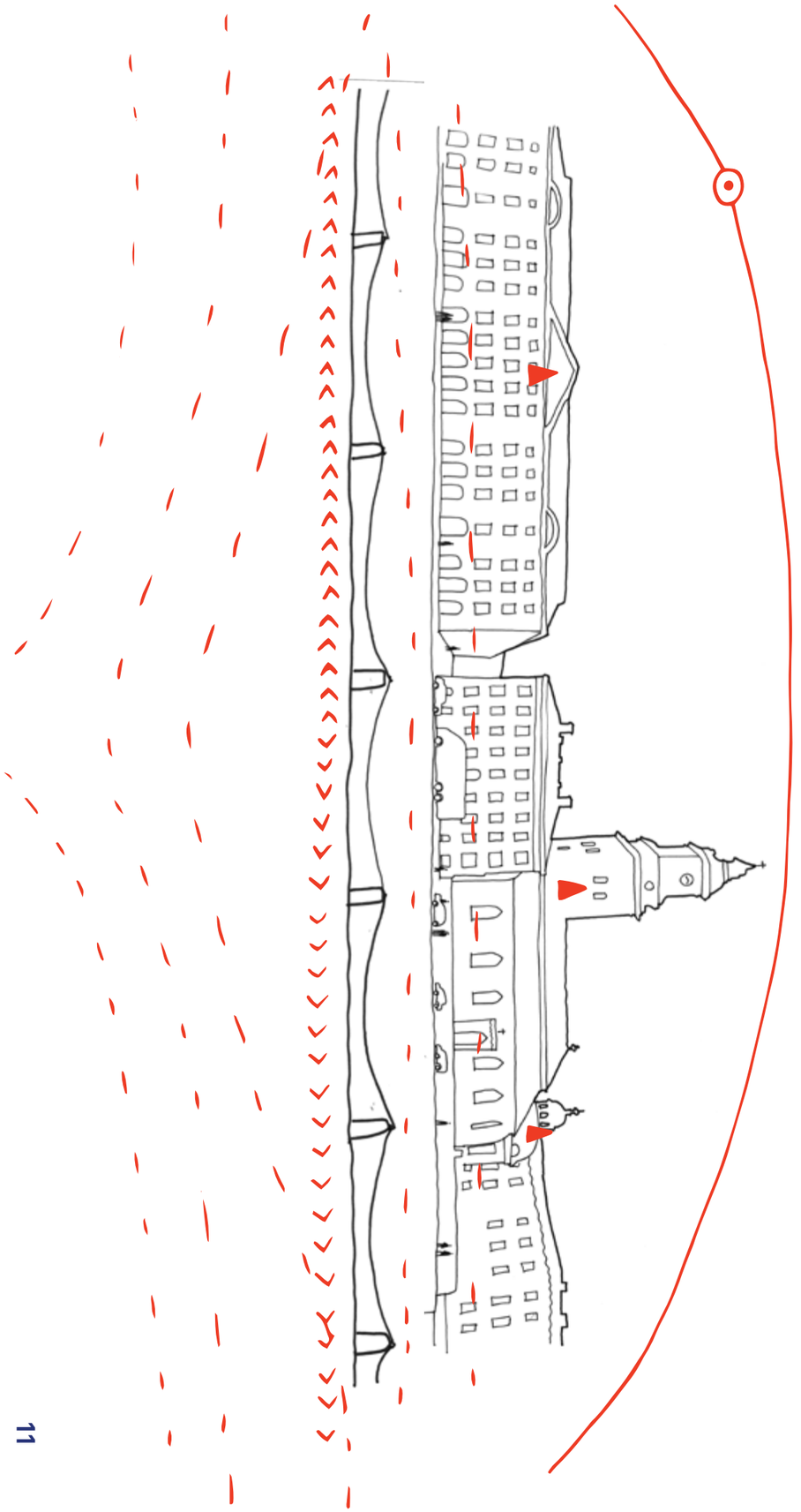












Authors' comments

The notation system that we developed during this thesis does describe the experience of moving through a building and we could also implement it to design. The system works for both transcribing and for designing, although with some issues and not in the precise way that we aimed for to begin with.

Notating experience as opposed to physical forms of architecture is unavoidably subjective and vague, though the ***form*** of notations that we chose are dry but exact (and read with little deviation from the original idea). Our aim to make the system include ***every*** phenomena while also being precise was therefore problematic.

In the beginning of the thesis we did not consciously delimit what architectural qualities we wanted to represent and so this decision was taken unconsciously during our site visits. As a result our system is most adept at describing the concert hall, which was the first building visited and the base for our system. Involuntarily, we let the values of the concert hall decide the values of our system.

Another thing that affected the system's values was the fact that we are two authors to this thesis and so in the first part we tended to avoid notating things that we could not communicate in an exact way verbally, something that the system itself possibly could aid with in further iterations.

In part 1 of the thesis, we early grasped the consequence of these values that the system was built on, believing we could eventually change them or add to them. We accepted them and wanted to see where our initial path could lead us. In part 2 the gap between our own architectural beliefs and the system's inherent values led us to go against the nature of the NS, when doing the sequence sketches. Temporarily breaking the original format of the NS allowed us to redefine what was important to us in designing a library. In a continuation of the thesis, these realisations could have been used to reconsider what the NS signifies.

Concluding, we find that the thesis has been successful in that we have developed a method that guided us to see other aspects of architecture than what traditional methods lead us to. Using the NS to envision the library helped us to not get locked to the physical constraints of the existing building and to stay in the spatial vision for a while longer.

We have found that the NS can carry meaning that is not in the traditional drawings, and that many aspects of our method can be implemented in future design tasks.

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Image sources

Figure 4. Eisenstein, S. (1940). Vertical Montage. [Online image]. Wikimedia commons.
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Figure 8. (1939). Reichskanzlei grand marble gallery, Berlin. [Online image]. German Federal Archive.
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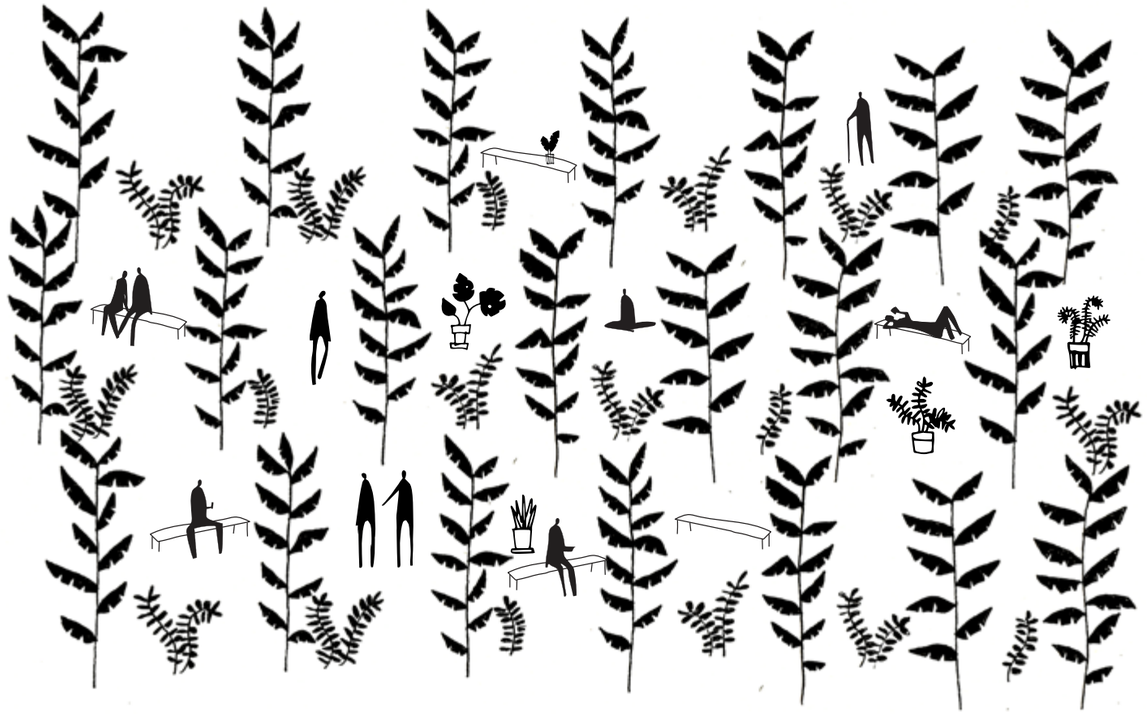

Thank you!