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BEYOND GRAPHICS AND URBAN SPACE

ABSTRACT



CHALMERS
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BEYOND GRAPHICS AND URBAN SPACE

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It can be easily observed that some public spaces appear empty, even if they have some features that could make them attractive, while other are bustling with life. This problem might occur if a space is seen as transitional, as in one which is used only to pass through and where nobody decides to stay. Some factors that cause this seem obvious, such as location or lack of facilities, however they do not answer what causes someone to make the decision to stay or not on subconscious level. The reason for this might be that this is caused by how the space is perceived, which can be affected by visual means on many levels.

One such space is a pedestrian passage in between Frölunda Torg and residential areas. It appears empty, is used mainly on the way to the shopping center or as a shortcut to the tram station, which creates a striking contrast when compared to the interior of the mall, that is a meeting point of local community, used by every age group.

With the site as an example of space with those qualities, I analyse the possible reasons

of such state using the notion of liminality and develop a toolbox of visual methods, that can be used to affect the perception of the space, from transitional to a place of its own. I use both 2D and 3D abstract graphical forms that are supposed to convey spatial effects of architecture, create new directions and connections, highlight certain parts, as well as manipulate space with color and perspective. The designs are specifically not intended to be buildings or structures, instead they are supposed to be a spatial representation of a concept, that might be also applied in other contexts.

The final result of the work is application of the concepts and methods in the same space as used for research, in the form of a specific design.

Keywords :

intervention, public space, liminality, installation, graphic design

TABLE OF CONTENTS

Introduction	
Purpose and exploration	1
Thesis questions and objectives	1
Background	1
Method	2
Delimitations	2
Reading instructions	2
Site	3
Theory	
Liminality and space	7
Meaning and effect of colors	16
References: precedents	18
Specific references	23
Main material	
Analysis of Frölunda Torg through the notion of liminality	27
Materiality	33
Colors and detail	34
Test of urban floor patterns	35
Urban floor graphics	37
Color reference	39
First test in 3D space	41
Smaller experiments	42
Op-art approach	43
Supergraphic approach	45
Spatial effects graphics	47
Conversion into 3D	48
Projections	49
Projections in the model space	51
Model test	53
Forms based on purpose	57
Space manipulation based on color	62
Space manipulation based on perspective	65
Application in the space of the passage	69
Current situation	71
Work process	73
Final result	79
Drawings	81
Discussion	85
Bibliography	91
Images	93
Student background	95

INTRODUCTION

PURPOSE AND EXPLORATION

When passing through urban landscape, we can observe how some public spaces appear empty or that nobody stops or spends time within them, while others are bustling with life, concentrating all activity. Very often it can be assumed to be natural, with people subconsciously deciding how they see each space.

One example of this is the pedestrian passage next to a shopping center in Frölunda. It remains a transitional 'corridor' between the mall and residential areas, but the interior of the mall is a center of local community and a meeting place for all age groups. This juxtaposition can be experienced simply by being there, the contrast between the lively inside and empty outside is striking. My aim is to explore what causes the public to perceive a space as transitional and to counteract this through means of graphic design, in a way that suggests spatial effects, without actual 'real' structure.

To illustrate this, we can look at the example of visual communication. At the edges of railway platforms we can often find yellow stripes. There is no physical barrier, but they are implying a function of keeping people away. And since it is so universally used, it can be seen as an indirect proof that it works. With my intervention, the purpose would be to counter the transitional qualities of the space, to encourage people to use it.



Spatial effect of graphic elements in space

THESIS QUESTIONS AND OBJECTIVES

How to affect behaviour of the users of public space to change its' use from transitional to a place to stay?

How can the spatial effects of architecture be translated into a graphic-based form?

The purpose of the research is to explore methods of affecting the experience of the user of a space and to create a toolbox of visual methods, both two- and three-dimensional, that can be employed to influence it. Finally, the methods are applied to the space of the passage in a form of a 'final design'.

BACKGROUND

The research fits into the general discussion about design of public spaces. Various explanations of rules that make a public space successful can be found in the works of authors such as Jan Gehl, that can serve as a manual for designers. When talking about space in general, there is an abundance of personalized views of famous authors, like Rem Koolhaas or Yi-Fu Tuan. Attempts of explaining public space can also be found in other media, such as the documentary *Social Life of Small Urban Spaces* from 1979, which observes how the crowd moves through the public space during the day, where it can be clearly seen how factors such as sunlight directly influence where people are concentrating. Despite most of those references being decades old, it cannot be said that any final conclusion has been achieved, which reflects the individualistic nature of any design discipline.

Another topic that I touch upon in the thesis is the concept of liminality, which has a long history and application in every possible discipline. Despite this, it only achieved wider popularity recently thanks to internet culture, where it is associated with a certain style of photography. A detailed framework in the context of anthropology or psychology exists, but seems to be lacking within architecture, as most examples present only a specific point of view of the author, with notable exception of Aldo van Eyck. However, there are also many similar concepts, but not named as such, that can be used to further the discussion.

A lot of components for the methods I am researching can be found in the world of art. Abstract art movements, especially from early to mid 20th century, provide a lot of valuable experimentation, that also has a history of use in architecture. Other important reference is the supergraphics movement, which is a direct precedent to using graphic design for the sake of changing perception of architectural space. A very relevant outlook on related topics can also be seen in deeply personal works. Explorations of ambiguousness, emptiness and everyday objects and spaces can be found in photographs by Luigi Ghirri. The discussion about colors, apart from authors, who try to create some kind of coherent system, can also be very individual and poetic, as seen in a book documenting the correspondence of artists John Berger and John Christie for example.

In general, significant part of the background for my work has been shaped in the past, however, the nature of the problem makes it an eternal part of architecture and I believe that it is not possible to solve it in a definitive way, only getting closer to understanding. Perhaps it will remain unsolved, as design has an artistic, irrational aspect, that unlike more scientific disciplines, leaves room for experimentation, speculation and reinvention.

METHOD

The thesis work involves mostly analog tools, such as drawings or models, as well as literature studies. First, sketches are made to illustrate the thought process or idea and later, models are built to test them in 3D space. Results are documented using photography, with similarly composed frames to enable comparison. Other method involves using a projector to transfer 2D graphics into a three-dimensional context. The theoretical part involves studies of literature and references, in form of both description of relevant concepts, movements, as well as specific examples of spaces. I am also using the concept of liminality as a method, in order to analyze the properties of the space.

Most of the visual work is conducted through research by design, as the different experiments not only allowed to test different methods and solutions, but also helped to shape the direction of the work and final outcomes. The work process and research can be described as circling around, where different topics that are not directly answering main questions are brought out and when combined, they bring closer to understanding.

DELIMITATIONS

Because of the abstract matter of the thesis and the expected outcome, I did not take into account technical aspects such as material, structure, accessibility, ownership of the plot, building law and city planning. However, the design is based on reality, using real dimensions and is expected to be possible to be realized, in case the necessary level of detail is provided.

READING INSTRUCTIONS

The material should be read in order, the theory section provides background for the later design work. The design explorations are grouped in a conceptual order. Some of the explorations are provided with an image without any intervention, as a point of reference.

SITE

History

Västra Frölunda was incorporated into the city of Gothenburg in 1945. Until the 1950s and 60s, it was a rural area focused on agriculture, with the village Ekeback located in place now occupied by Frölunda Kulturhus. Later, during Rekordåren (1960-1975), it was drastically transformed into a high-rise neighborhood as a response to rapid rise in housing demand. While the city planned new satellite towns since late 1940s, the plans were shelved in anticipation of a new expropriation law, which made it easier to force landowners to sell property at a fixed 'local price'. Final plans for a self-sufficient town connected to a highway were made clear in 1959, but since the housing demand exceeded expectations, the development was more intense and plans were changed accordingly into a 'neighborhood unit'. The planning was thoroughly prepared, with a lot of focus put into providing varying functions, such as shops, education, healthcare, offices, culture, as well as green spaces, adequate sunlight, access to public transport, separation of vehicle and pedestrian traffic and interesting, sculptural architecture, which made the development unique in Gothenburg. To speed up the construction, prefabrication was widely used. From 1970s onwards, new buildings, as well as extensions to existing ones were added, including Frölunda Kulturhus (Antiquum AB, 2018b).

The center of the neighborhood, Frölunda Torg opened in 1966, after a seven year long construction and was claimed to be the biggest shopping mall in Europe. It was planned together with the new tram station, as well parking space for 3000 cars. The architects Klemming and Thelaus travelled to the United States to study typology of malls, as it was still relatively new in Europe. The importance and sense of pride for the construction was exemplified with the opening ceremony visited by the Prime Minister Olof Palme (Frolunda Torg, 2021).

Now

The architecture of the area is dominated by the 1960s era buildings. Low, brick-clad shopping

mall contrasts with white, perpendicularly placed 12-story tower blocks. The tallest building is the hospital, which has 17 floors. All the taller buildings share similar architectural solutions and tectonics, with a blocky shape, prefabricated concrete panel structure and vertical elements on the facades, that altogether might be seen as monumental. New additions to Frölunda Torg seem to reference the original architecture, with use of brick cladding, however others, such as the residential building north to the mall, create contrast with their non-blocky shape and irregular placement of windows. In the distance from the site, over the bridge, the landscape is dominated by wedge shaped Kommandobryggorna towers and an 800m long residential building that forms a border between the two areas.

Future

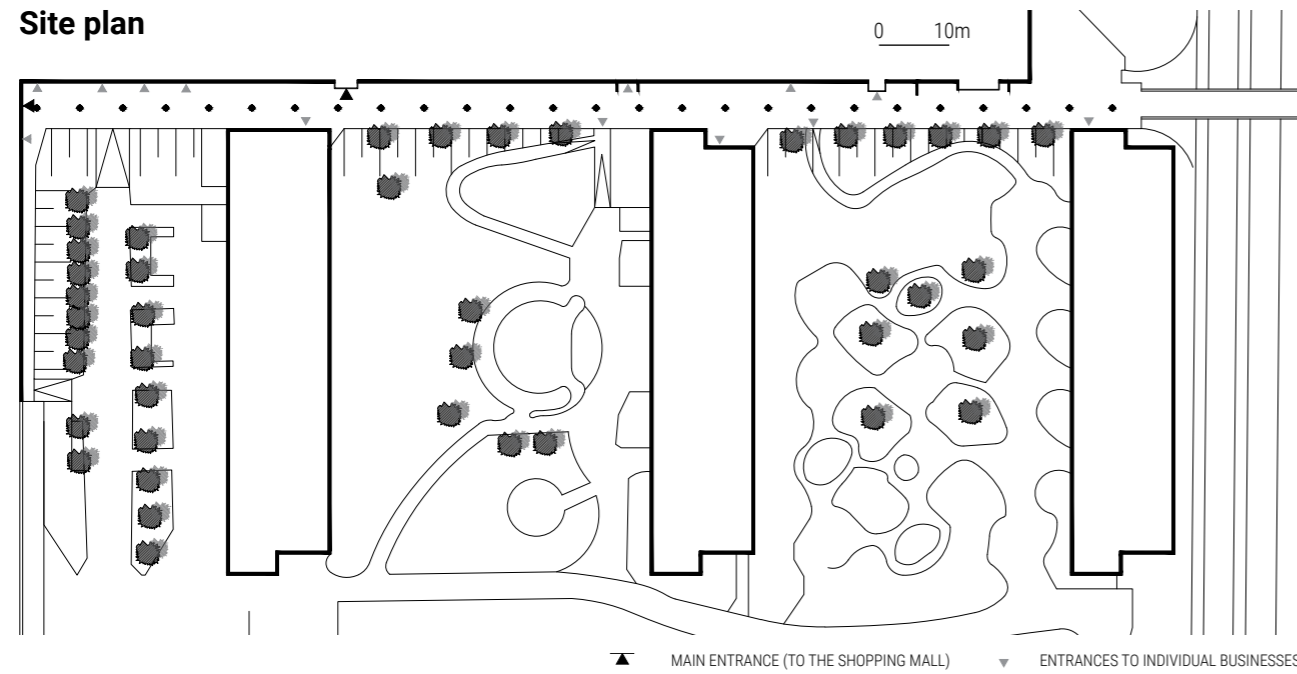
The city created a proposal of radical development plans for the future of the area, prepared by Skandia Fastigheter and Wingårdhs. The main purpose appears to be increasing the density. New buildings are to replace the extensive parking spaces and some of the green areas, additions to existing buildings are also suggested. The proposed solution implies there is a need for a significant change in layout, shifting from modernist planning to more traditional urban grid. However, very likely the main motivation is financial, as the increase in density is substantial and many proposed solutions would negatively affect the residents of existing buildings, for example by limiting the amount of sunlight, privacy or access to public spaces. Interestingly, the original 1960s buildings are protected in the plan (Antiquum AB, 2018a), which raises a question how much value their architecture has without the context of the original urban plan.

Analysed location

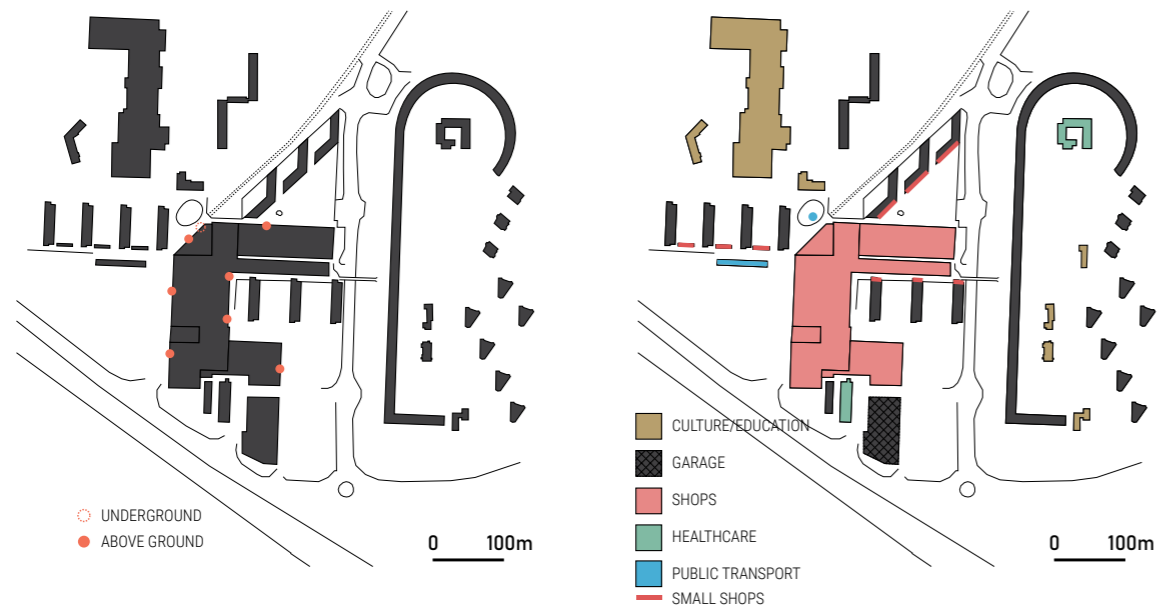
The site of the project is a pedestrian passage located between Frölunda Torg and residential buildings, connecting the shopping mall to the housing area on the other side of Marconigatan.



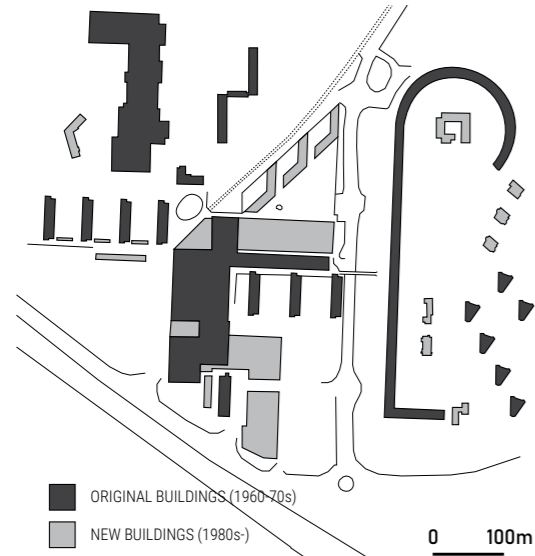
Site plan



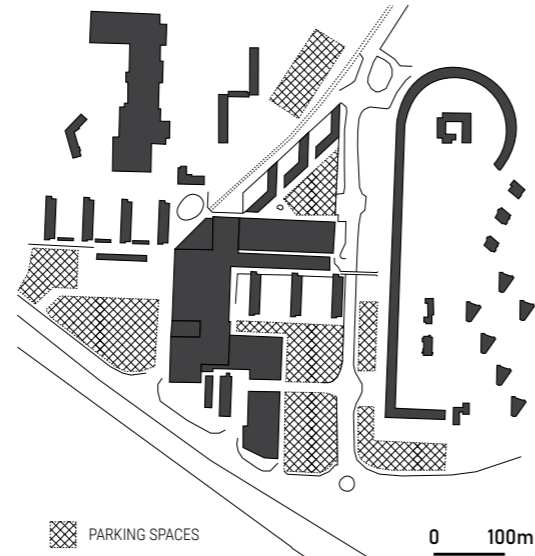
Site diagrams



Public entrances to Frolunda Torg



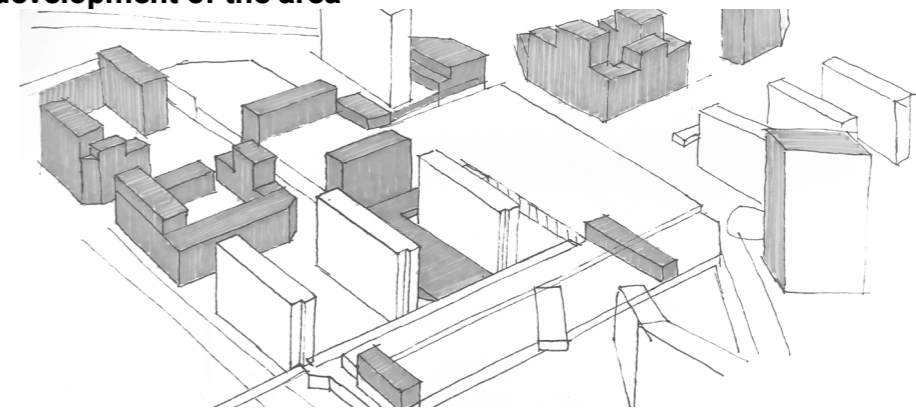
Services in the area



Development of the area

Areas used for parking

Plan of the development of the area



Drawing based on Detaljplan, proposed buildings marked in grey.



THEORY

LIMINALITY AND SPACE

In many significant occasions in life, we are in an in-between state, on a threshold, where we can no longer hold the previous status, but we are still not sure about the outcome. It happens also when we think about certain spaces, in which we are only on the way in between others, such as corridors. The concept of liminality, stemming from early 20th century anthropology, has wide range of applications, including psychology, religious studies, folklore, art, ethnography and architecture. Development and research of the idea in the context of architectural theory could potentially become a powerful design tool or allow to better explain spatial and social relationships within built environment.

Origins of the concept

The term liminality comes from Latin word *limes*, meaning 'threshold' or *limen*, 'boundary' or 'limit' (Wels et al., 2011). It was invented by Arnold van Gennep in his 1909 book, 'Rites of Passage', to describe the ambiguous middle phase of the rites in tribal societies. "Rites of passage are rituals or ceremonies associated with significant turning points in the life of a society and in the lives of individuals" (Stenner, 2018, p. 6). They are associated with events such as pregnancy, childbirth, childhood, initiation, marriage and funerals, but also changes of seasons or territory. According to Stenner (2018), van Gennep suggested that rites are divided into three phases:

Preliminal (separation)

When the individual loses their previous status

Liminal (transition)

When the individual often has to pass a challenge or a test to achieve the next status. The social norms are temporarily removed, but the new order is not yet established. The participants become exposed to an unusual situation, which has no limits and can end up with failing the tests, which sometimes symbolically involve dangerous acts, such as jumps from a tall structure. Victor Turner described their status as 'betwixt and between'.

Postliminal (reincorporation)

When the new status is recognized

We can trace the rediscovery and recent use of the term to Victor Turner's work. His research was a gateway for using the concept outside of the original context. "For him, a 'liminal phase' could thus refer to almost anything in which there was a normally short lived period of upending of a prior hierarchy and during which power reversals occurred, or at least appeared to have occurred" (Wels et al., 2011, p. 1). For some authors, this lack of specification was a reason for criticism, but for others it proves endearing, as it provides a wide range of application and can be flexibly adapted to any area (Wels et al., 2011). Interestingly, that is why liminality can be also used to discuss political situation, tourism or even medical treatment, especially of patients fighting cancer or other life-threatening conditions. "Liminality helps to study events or situations that involve the dissolution of order, but which are also formative of institutions and structures" (Szokolczai, 2009, p. 1). For Szokolczai, liminality is a key aspect of understanding the problems of modernity, and neglect in addressing this topic hinders our grasp of the world.

Impact of liminality

"Liminal experiences are experiences that happen during occasions of significant transition, passage or disruption" (Stenner, 2017, p. 14). According to him (2017, p. 14): "We experience liminality when the forms of process (socio-psycho-organico-physical) that usually sustain, enable and compose our lives are, for some reason, disrupted, interrupted, transformed or suspended". In that case, experience "means that once previous certainties are removed and one enters a delicate, uncertain, malleable state; something might happen to one that alters the very core of one's being" (Stenner, 2018, p. 12). "During the middle phase of such a process the individuals involved are understood to be 'no longer' and simultaneously also 'not yet'" (Wels et al., 2011, p. 1). We could conclude, that in general liminal experiences are the ambiguous in-between states, where the outcome is uncertain.

Stenner (2017) suggests there are both spontaneous and devised liminal experiences. The first kind being the ones that 'happen to us', examples of those are collective disasters, such as flood or earthquake or more personal, such as divorces or deaths. "These are experiences in the true sense of the word: they are things we must go through. They are also things that mark and transform us: we are different when we come out the 'other side'" (Stenner, 2017, p. 23). The devised ones occur on purpose, they mark significant events in life, create strong emotional reaction and are supposed to 'move' the participants to pass through unordinary experiences, preparing them for the next phase in life. They often involve activities that are out of the ordinary or break social norms, such as dressing up, intoxication, dancing, various challenges or public humiliation of the participants (Stenner, 2017).

"Liminal occasions tend to be highly affective in nature because they are formative moments of great significance: leaps into the unknown" (Stenner, 2017, p. 15). When discussing learning experience, Rattray (2016) mentioned that to some, entering the liminal space can bring hope of transformation or gaining new understanding, but for others it is a moment when they stop, being unable or not wanting to give up on their previous mindset. The experience of transition is connected to an emotive state, and the threshold concepts associated with it could be seen as scary or frightening (Rattray, 2016). To illustrate this, it should be noted how in many cultures thresholds, gates or doors have a significance in local folklore or superstition, where often some kind of ritual is needed to pass through them successfully or to protect from their influence. For example in Russia, greeting through a threshold is thought to bring bad luck (Strausova, Strausov and Mitrofanenko, 2014) or in Jewish homes, mezuzah, a capsule containing parchment with verses from Torah, must be placed specifically in the doorpost and is thought to have protective properties (Alexander, 2014).

Theory of liminality in architecture

While a well developed concept in its' traditional field, in architecture it still proves to be relatively new, with limited literature focusing on the subject. In the context of architecture, liminality in the most literal sense implies a transitional

space, that could be described as "neither one place nor another; neither one discipline nor another; rather a thirdspace in-between" (Smith, 2001, p. 1). Common examples of those are corridors, stairs, airports, hotels and other places used only briefly, on the way to another location. However, another definition would be "ephemeral relationship between people and spatial environments" (Smith, 2001), which gives a much bigger room for interpretation.

Smith (2001) believes that applying liminality to architecture practice would mean a shift from building objects to user experience and that simply moving from fixed structure to openness and flexible structure is not enough. For example, Smith suggested that installation art could be seen as a liminal practice, because it gives priority to audience experience. Instead of remaining within a framework created by architect, the users could be encouraged to create their own spaces as well as occupy or even destroy them. Therefore, the role of the architect could shift from imposing, to enabling (Marić, 2011).

Conscious use of liminality in architecture could be traced back to Aldo van Eyck's work in the 1960s, who redefined the doorstep as in-between space (Leite, 2016). For him, door is the place that belongs both to the inside and to the outside, it has an analogic meaning to the rite of passage, repeated thousands of times (Leite, 2016). "Doors and windows and other type of spatial device that materialize a threshold can be designed as distinct traces of limits, as well as devices that establish the passages/transitions to the exterior. The devices can establish two types of limit, frontier and bridge. While the first determines an enclosed space, the second refers to a space that opens to the outside" (Leite, 2016, p. 85). While doors form a 'passage' and windows an 'opening', both serve as interfaces between spaces, that enable the visual or physical transition (Leite, 2016).

With the developments in technology, windows could become larger, integrating the interior and exterior, but they still retain the function, distinct from doors (Leite, 2016). Same kind of thinking can be applied to walls, they are a mediation device that creates a physical boundary with their mass and thickness (Leite, 2016).



Image 1 Appreciation of the in-between in Aldo van Eyck's architecture

The concept of liminality could lead to deeper reinterpretation of architecture. When the façade is interpreted as a border between exterior and interior, it means it could be seen as a space rather than a rigid element, the same idea could apply to walls (Marić, 2011). According to Smith (2001), there is a clear difference when we think about traditional unitary architectural elements with clear borders, comparing them to the ephemeral and fluid qualities of space. We could also speculate how architecture could lack the traditional built objects, such as with the example of muf, a British firm, whose works focus on small interventions within local communities instead of traditional structures (Smith, 2001). Also, liminal thinking could apply to the concepts of integrating digital space within the built environment, which provides great opportunities for including user feedback (Marić, 2011).

Van Eyck

Louis Kahn mentioned that Van Eyck "made a speech about the meaning of a threshold just before you enter a room. It was magnificent, because through this, you could build a whole architecture" (Wurman, 1986, as cited in Ligtelijn, Strauven, 2008, p. 615).

Van Eyck's writings stem from criticism of contemporary modern architecture, which he thought should engage more with its users, by reconnecting with early modernism, as well as non-western and archaic cultures, and redefining it from progress-oriented 'space and time' to humanist 'place and occasion' (Ligtelijn, Strauven, 2008). He believed that architecture needs to respond to unchanging characteristics

of humanity, with "the use of certain fundamental values, having an archetypal essence, able to respond to the permanence of certain human constants" (Terminio, 2019, p. 126). He illustrated his thoughts with 'Otterlo circles' diagram, "with a representation of two circles enclosing, respectively, the space-formal realm of architecture and the social realm of human interrelationships" (Terminio, 2019, p. 126). "Building on the line of thought about the concept of 'doorstep', the new configurative principles had to be oriented towards overcoming the polarity that permeated both the social and architectural spheres, implementing the practice of 'in-between', that is, the process of interaction of dual phenomena through the space-formal composition." (Terminio, 2019, p. 126). For him, the doorstep "establishes the in-between that reconciles conflicting polarities such as public and private space" (McCarter, 2018, p. 49).

In his projects, such as Children's Home of Amsterdam, he often started with a strict modular grid, with each of the layers of units revolving around a central space. He assigned prime role to the links between parts of the building and resulting open spaces. "The relationship between common and closed open spaces, some of which are more reserved, is what characterizes the entire complex and makes visible the compliance with the 'doorstep', in its ability to mediate between the architectural polarities" (Terminio, 2019, p. 129). One of his theories was 'aesthetics of number', "where the twin phenomena of many/few, large/small, whole/part, and collective/individual could be simultaneously engaged in a design, rather than emphasizing one over the other" (Ligtelijn, Strauven, 2008, p. 616).

Other concepts

Interestingly, we can find similar concepts to liminality, but not named as such. For Rem Koolhaas (2002), junk space is the ambiguous result of development, which uses the great inventions of modernity, not to create anything, but just to expand. It is subordinate to technology, such as air-conditioning, which makes using it cost money. It is a result of realization and not of intention. Junk space lacks clear borders and structure, it is aimless and directionless, full of contradictions and fakeness. His examples of those are shopping centres, airports, buffets and many other commercial spaces. According to Koolhaas, "Architects could never explain space; Junkspace is our punishment for their mystifications" (Koolhaas, 2002, p. 176).

Other example is Jan Gehl (2011), whose book 'Life Between Buildings' refers to concepts in urban planning, that could be seen as liminal. For example, he defines spaces for 'staying' and for 'walking', noticing that the usability of the public space often depends on how detailed it is, if it lacks anything attracting attention, people would just pass through. "It is not enough merely to create spaces that enable people to come and go. Favorable conditions for moving about in and lingering in the spaces must also exist" (Gehl, 2011, p. 129). For him, the right design is what makes the space usable for the public, it has to enable activity other than walking or sitting. Also, when the space is actively used by people, it happens to attract others.

He notes that focus on vehicle traffic in cities, creates situation where the streets are used only for movement, because of which large part of the city could be seen as liminal. Segregation of pedestrian and car traffic seems to create borders, which also separate people, both in cars and on foot, from urban activities. Sometimes people create their own non-liminal space, that was not intended by the planners. "If there is a well-functioning piazza, people congregate there, but if there is no piazza and no city life, then street corners at traffic intersections become meeting places, where at least there is something to look at" (Gehl, 2011, p.127). In contrast, in a pedestrian oriented city, such as Venice, "When a bridal couple leaves the church they do not get into a black limousine but continue on foot through the city followed by the wedding guests." (Gehl, 2011, p. 127)

Yi-Fu Tuan found importance in studying space and place, trying to answer questions, such as what makes location a place, what is the 'personality and spirit' of the place, and what is the sense of place. Place "is a unique entity, a 'special ensemble'; it has a history and meaning. Place incarnates the experiences and aspirations of a people. Place is not only a fact to be explained in the broader frame of space, but it is also a reality to be clarified and understood from the perspectives of the people who have given it meaning" (Tuan, 1979, p. 387)

He presented an anthropocentric view, claiming that space is implicated with human body, they coexist together. "Visual perception, touch, movement, and thought combine to give us our characteristic sense of space" (Tuan, 1979, p. 390). He brings up how factors, such as depth and distance, biology, certain characteristics, like vertical and horizontal elements, straight and oblique lines, angles or irregularity, affect our perception of space.

Body implicates space; spatial measures are derived from dimensions of the body; spatial qualities characterised as static, dynamic and affective, patent and latent, high and low, near and far are clearly called into being by the human presence; depth and distance are a function of the human sense of purpose and adequacy; 'crowdedness' is less an expression of density than a psychological condition (Tuan, 1979, p. 405).

Yi-Fu Tuan also studied space on conceptual, non-material level, with notions of time, language, personal and group experience, cultural background, mythical-conceptual orientation, sense, spirit and personality of space. To make space a place, it needs to be given meaning (Tuan, 1979).

Examples

For the purpose of trying to find some common characteristics of liminality in architecture, I decided to divide them into 3 subjective categories, with my interpretation of the space. I attempted to find spaces that have archetypal qualities, which anyone could identify with.

Liminality through function

A direct result of the purpose of the space, most likely unintentional as a conscious design choice.



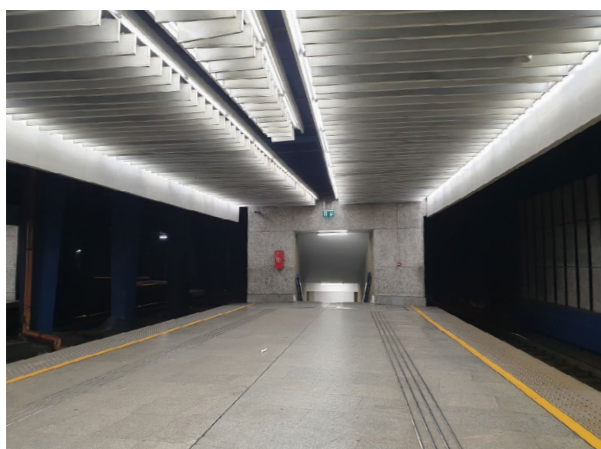
Metro station

Transitional character stems from the function and is enhanced by linear layout



Department store staircase

Circulation space between different levels of the shopping areas



Railway station platform

Place of transition between different cities and countries



Entrance

Border between the inside and outside



Gas station

Space for a short stop between origin and destination



Building with external access to apartments

Space that is neither private nor public

Liminality through lack of function

Where the space loses its' original meaning and purposelessness gives it transitional qualities. Could happen while the space goes through transition from use to destruction. Does not encourage to stay because of lack of reason or possible sense of danger or uneasiness, this could also apply to abandoned or other neglected spaces, clearly unintentional. Might also affect spaces that are occupied only during specific time and lose purpose after.



Closed 1970s supermarket

Lack of clients, staff and products leaves the space without a purpose, it is left in a stage of transition between active usage and demolition of the building



Building on pilotis

The space under the building seems to be neither public nor private, it has an unclear function and possibly inadequate lighting



Space between buildings

A leftover space with no use for humans, result of terrain and neighbouring, conflicting typologies



Underground storage space

Neglected condition and inadequate lighting create a sense of danger, which encourages to move to other space, also transition from underground to above ground and dark to light



Ancient ruins

Destruction and loss of original function makes the space transitional in movement of the visitors and in time and history



Terrace during winter

The space is only useful during right weather conditions, during winter it stays in a transitional period where it has no purpose

Liminality as a design choice

Amplifies the transitional purpose of the space, does not invite to stay there for a longer period of time, most likely intentional in purpose, but not described as liminal by the architect, can overlap the first category.



Conference room with bridges to other spaces

Being on the bridge, separated from anything that is happening below creates a dissociated, theatrical experience



External circulation space in a cultural building

Radical form of the building and the paths within create a transitional space for the users, preparing them for the cultural experience inside



Entrance to a monumental building

Raising the building above terrain creates an urban threshold and the set back colonnade forms a clear border to the building



Art gallery

A transitional space between exhibitions located in different buildings, neutral area in between spaces with specific focus



Bathroom in a public building

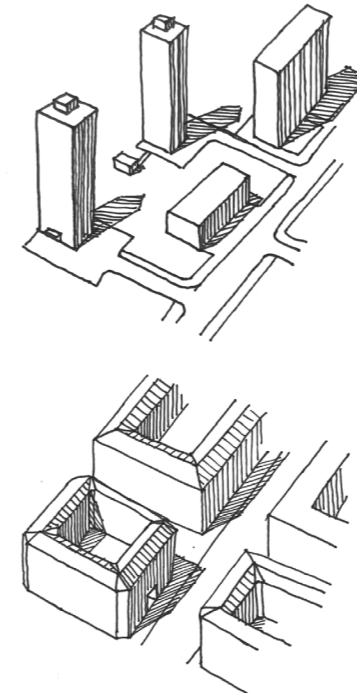
The material and colour solution as well as lighting highlight this as a space of temporary use, secondary to main purpose of the building



Abstract art installation

With no context provided and temporary character it gives viewers personal experience and freedom of interpretation

Speculations



Liminal vs non-liminal urban experience?

Liminality might provide a good explanation as to why some buildings or urban designs failed. If we look at modernist urban planning, we can speculate that lack of more traditional street structure makes the public space in between the buildings liminal, which causes all the effects of anxiety and uncertainty. Because of this, instead of intended use as parks or recreation areas, it becomes unused which causes even further problems.

Other examples are all the 'streets in the sky' ideas, where the external circulation space was supposed to be a place for integration between the neighbours, but instead became an empty and sometimes dangerous area, where nobody wants to spend time, leading to increased isolation and anonymity of the residents. Looking at layouts commonly used in history, we can often notice how clear the division between the private and public is. For example, with courtyard houses, we could say that the only clearly liminal spaces are the gates or passages that lead from the outside to the inside. Liminality of urban spaces might mean that the public-private division becomes unclear. If the liminal role of the walls, fences and other spatial dividers is removed, the border of the private gets shifted to the most obvious objects-buildings, with the rest often becoming an undescribed in-between space. Possibly

architects trying to challenge the traditional spatial divisions, simply could not predict how strong some of the archetypal associations are. That is why there might always be a need for borders, that help with the confusion or uncertainty of where we are welcome and where not. Maybe if a space has no clear borders it becomes a border itself? However, we should note that for some authors, there is a significant distinction between a border and a threshold, with the latter being clearly a passage, and the former a division (Leite, 2016). With this in mind, it could be also possible to research what kinds of effects do qualities such as proportions, linearity or lighting have on the perception of liminality.

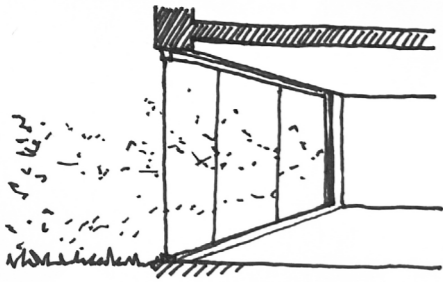
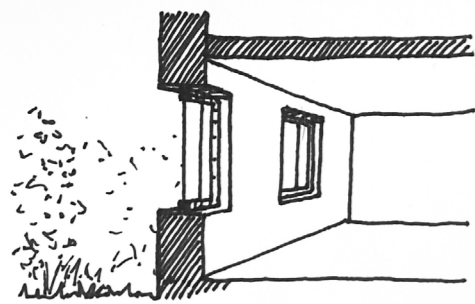


Liminal vs non-liminal street?



If we apply liminal thinking to already established architectural concepts, we might also reconsider what effects do they have. For example, the modernist idea of blending the interior and exterior. If we treat the façade as a liminal space in between the outside and inside, does making it transparent, meaning as much invisible as possible, cause it to disappear from our perception? If there is no perceived border, do the spaces really blend together?

A more obvious use of liminality, seems to appear in buildings focused on user experience, such as galleries, museums, monuments or even religious buildings. They usually feature some kind of gradation, from spaces where we 'experience' to spaces where we 'get prepared' or 'take break'.



Border or lack of it?

Liminality might help us to understand those spatial relationships better, without relying only on the previous experience or resorting to experimentation.

It is worth to ask the question whether liminality can be subverted or avoided even within a space that is transitional because of its' function. An obvious example of this are stairs.



Liminal or non-liminal stairs? Is it possible to subvert the experience of archetypical liminal space?

Since they exist to connect different levels, they are one of the most typical liminal spaces. However, it is also possible to create stairs that apart from their role in circulation, can serve as sitting spaces, where people actually spend time.

A problem with this occurs when a building is liminal on a more conceptual level. For example, airports, railway stations or gas stations are only used on the way somewhere else. Also hospitals could be described as liminal, because a stay there is a transitional period of recovery or sometimes even between life and death. Avoiding the stress associated with liminality in those kind of places could greatly improve the psychological condition of the users. Would it be possible to subvert liminality to create a stressless waiting area at an airport or a relaxation space where the patients would no longer think about their treatments? Could they experience that they are not in a liminal space at all? To design this way, architects might have to gain a much deeper understanding of psychology.

To sum up, liminality in architecture could mean:

- Spaces that literally exist in-between other
- Spaces that focus on experience
- Spaces where users undergo transition from one state to another
- Spaces which are transitioning from one state to another
- Elements of architecture that have a transitional purpose
- Transitional periods in art or technology

With such a wide range of meaning or interpretations, it would be natural to doubt the usefulness of the concept. Outside of the purely speculative academic context, it seems not clear what would be the real benefits of its' use in design, especially material or economic. However, liminality might also be the key to understanding, explaining and predicting various issues in architecture, which remain unnamed and unclear, but cause visible and sometimes disastrous effects.

MEANING AND EFFECT OF COLORS

“Colour is too arbitrary to systematically think about, colour is too obvious to talk about, and colour is too mystical to discuss sensibly” (Jasper, 2014, p. 121).

Research into the theory of colors has long history in art and while some authors tried to apply the scientific advancements, others were focused on subjective interpretations. A good example is Wassily Kandinsky who did not interpret color in physical or material terms, but in emotional effect, his writings were based on empirical feelings instead of scientific theories, which sometimes resulted in contradiction, such as with red, which he saw both as stimulating or paralyzing (Selz, 1957). As stated in Dabrowski (1995, p.19) “he associates red with a spiritual vibration caused by a flame or, in a different hue, blood. As such, the psychological effect can be either stimulating or painful, and can be enhanced by a circular, triangular, or square form”. Kandinsky often drew synesthetic comparisons in his writings, relating to different senses:

Blue in Kandinsky's system is the heavenly color; it retreats from the spectator, moving toward its own center. It beckons to the infinite, arousing a longing for purity and the supersensuous. Light blue is like the sound of the flute, while dark blue has the sound of the cello.

Yellow is the color of the earth. It has no profound meaning; it seems to spread out if its own center and advance to the spectator from the canvas. It has the shrill sound of a canary or of a brass horn, and is often associated with the sour taste of lemon.

Green is the mixture of blue and yellow. There the concentricity of blue nullifies the eccentricity of yellow. It is passive and static, and can be compared to the so called “bourgeoisie”, self-satisfied, fat and healthy. In music it is best represented by the placid, long-drawn middle tones of the violin.

White, which was not considered a color by the impressionists, has the spiritual meaning of a color. It is the symbol of a world void of all material quality and substance. It is the color of beginning. It is the “sound” of the earth during the white period of the Ice Age.

Black is like eternal silence. It is without hope. It signifies termination and is therefore the color of mourning (Selz, 1957, p. 133).

As seen with the example of Kandinsky, interpreting colors in a psychological way is inherently subjective, varying not only in the person of the author, but also cultural background:

It is also true that specific colors call forth different associations in people as well as cultures. Specific reactions to specific colors have never been proved experimentally. Max Raphael in his book, Von Monet bis Picasso, points out that colors have had altogether different meanings for those individuals most occupied with with them. Yellow, for example, signified the earth for Leonardo, had gay, happy characteristics for Goethe, meant friendliness to Kant and heavenly splendor to Van Gogh, suggested the night to Gauguin and aggressiveness to Kandinsky. We might add that it symbolizes jealousy in German usage, an emotion which is associated with green in English idiom (Selz, 1957, p. 134).

Strong colour has long been characterized as naïve, lacking in sophistication, literally childish, whereas a muted palette, or monochrome, by contrast, denotes refinement. In Western society, colour has been associated with femininity, and with emotional, rather than rational or logical responses, although there is little physiological evidence of any true gender difference on which to base such an assertion (McLachlan, 2012, p. 1).

An important milestone in color theory was Goethe's work, as before him, color was seen as a subjective experience (Jasper, 2014). He invented the color wheel, as well as researched many properties and optical effects, for example he identified receding colors (for example blue) and protruding colors (such as red) (Goethe, 1840). Earlier, attempts of categorization were made by many artists, with such examples, as Leonardo da Vinci, who identified phenomena like aerial or atmospheric perspective, where objects appear less saturated, colder or more blue with distance (Britannica, n.d.).

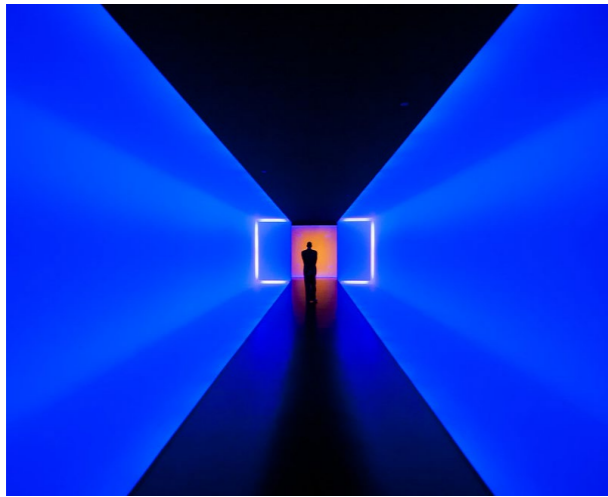


Image 2 'The light inside' by James Turrell

According to Jasper (2014), in architecture, the current research into color theory can be seen as lacking, which is associated with technological advancements. The shift from black and white to color photography replaced the need to talk about color with possibility to show it. Photography also affects how we see architecture from some periods, as for example Le Corbusier's works were polychromatic, but are often seen through black and white images, which removes a lot of the complexity, as modernism made extensive use of color in a more than decorative way (McLachlan, 2012).

The Modernist architects reassured themselves that it was safe to experiment with colour without it being seen as degenerately decorative, because the art to which they referred used colour in an abstract, rather than pictorial, manner. Flat surfaces or block colour could readily be transferred to walls, frames and planes. Painting and sculpture, therefore, had a direct influence on the way they thought about space and volume (McLachlan, 2012, p. 65).

In general, some authors suggest there is a widespread anxiety about use of color in art or architecture, for instance reflected in architecture education, where students are encouraged to model in neutral materials (McLachlan, 2012). This fear seems to be rational, as McLachlan suggests, that in scale of architecture, color can be overpowering, as unlike art, we cannot just walk away from it. She illustrated this with work of James Turrell, who created color light installations in an overwhelming scale, providing the sense of

limitless space and strong emotional response.

In visual communication, colors can be paired with warnings of possible hazards, for example red, orange and yellow can be associated with danger, warning and caution (Braun, Kline, and Clayton Silver, 1995, as cited in Westinghouse, 1981). Those associations are proven to be universal in populations exposed to the stereotypical safety signs, for example across Europe, except for yellow. (Braun et al, 1995, as cited in Dunlap et al, 1986). As reported by the study by Ng and Chan (2018), some associations of colors and concepts are particularly strong. Red, the most often chosen color, was paired together with "alert, caution, danger, decrease, emergency, emergency exit, error, escape, fatal, fire, first-aid, female, flammable, full, hot, increase, out of order, reset, and stop"; green with "entrance, exit, go, normal, on, open, recycle area, safe, and start"; black with "close, off and toxic"; yellow with "notice, radiation, and standby"; blue with "cold and male"; orange with "potential hazard"; white with "empty"; no associations were recorded for brown and purple (Ng and Chan, 2018). However, there are also differences between cultures, like how yellow is seen in different east Asian countries, or even between genders, as with green, where the association with life is stronger for women (Ng and Chan, 2018).

According to Bresnahan and Bryk (1975) as cited in Braun et al (1995) hazard association values for colors are the highest for red, followed by yellow, green and blue. When combined with shapes, the warnings can have stronger or weaker effect, for instance red, as the color with the highest rating for hazard, linked with an octagon, produces the most retaining effect compared to other combinations (Braun et al, 1995, as cited in Dunlap et al, 1986). Another example is the difference between high and low contrast background for the sign, with the former appearing to be more stimulating (Braun et al, 1995, as cited in Carter and Carter, 1981). Similar effects are observed in nature, where through bright colors and patterns animals communicate to predators that they are poisonous or unpalatable. Interestingly, some species mimic those patterns, even though, they do not have those properties, which helps to ensure their survival. When a pattern becomes abundant, predator population learns to avoid the prey bearing it (Mallet and Joron, 1999).

REFERENCES: PRECEDENTS

Suprematism



Image 3 Black Square by Kazimir Malevich (1915)



Image 4 Suprematist Painting: Eight Red Rectangles (1915)

Suprematism was a short lived art movement in early 20th century Russia, existing between 1913 and 1918, created by Kazimir Malevich. It rejected representation of objects, instead shifting to total abstraction, in form of geometric shapes in solid color on white background. "To create the visual illusion of space, Malevich arranged certain colors – often white, black, red – in a particular manner" (Harrington, 2020, p. 5). Malevich himself understood suprematism as a dominant role of feeling instead of trying to represent visual phenomena of the world (Harrington, 2020). "The reduction of external self and object to zero, the rejection of form and beginning with the void, was a fundamental premise of suprematism" (Douglas, 1975, p. 277).

Malevich was experimenting with the new art movements, including futurism and cubism, moving to more and more geometricized forms and bolder use of color and eventually pushing those conventions to extremes, which resulted in dead ends. In 1915, at the "Zero-Ten" exhibition he revealed all 30 of his suprematist paintings at once, on which he was working for a year in secrecy. "For Malevich, suprematism was the leading edge of human perception, a gateway to the real, the objectless, world" (Douglas, 1975, p. 281). The new, revolutionary statement was about abandoning the subject and move to non-representational art, where the objects do not limit the perception of the nature of reality and shifting it from the viewer to the

artist. To achieve this, he suggested developing inner consciousness and detaching from spatial relationships, using intuition, understood as a conscious state and not as an instinct. "The forms of suprematism were considered to have emerged from nothing in the sense that they were not given forms but rather the product of new perception, the altered consciousness" (Douglas, 1975, p. 279). The art was supposed to be created in a conscious way, where everything is done on purpose. The paintings consisted of simple geometric shapes in bold colors. One of them, the Black Square, seen as the boldest of the new paintings, was placed in a corner below the ceiling, a place traditionally reserved for a religious icon, to highlight its significance (Mudrak, 2017) "Malevich was forced by the nature of his art to present a minimal new form, to move off the null, and the square was the least he could do" (Douglas, 1975, p. 280). According to Malevich, suprematism consisted of three stages: black period, colored period and white period, with the final one being white forms on white background (Harrington, 2020).

While short-lived, very likely because of reaching the boldest statements with the initial exhibition, suprematism was instrumental in developing later abstract art movements, as well as graphic design and other fields, however Malevich himself had to abandon his experiments, because of political pressure from Soviet government (Harrington, 2020).

Color field painting

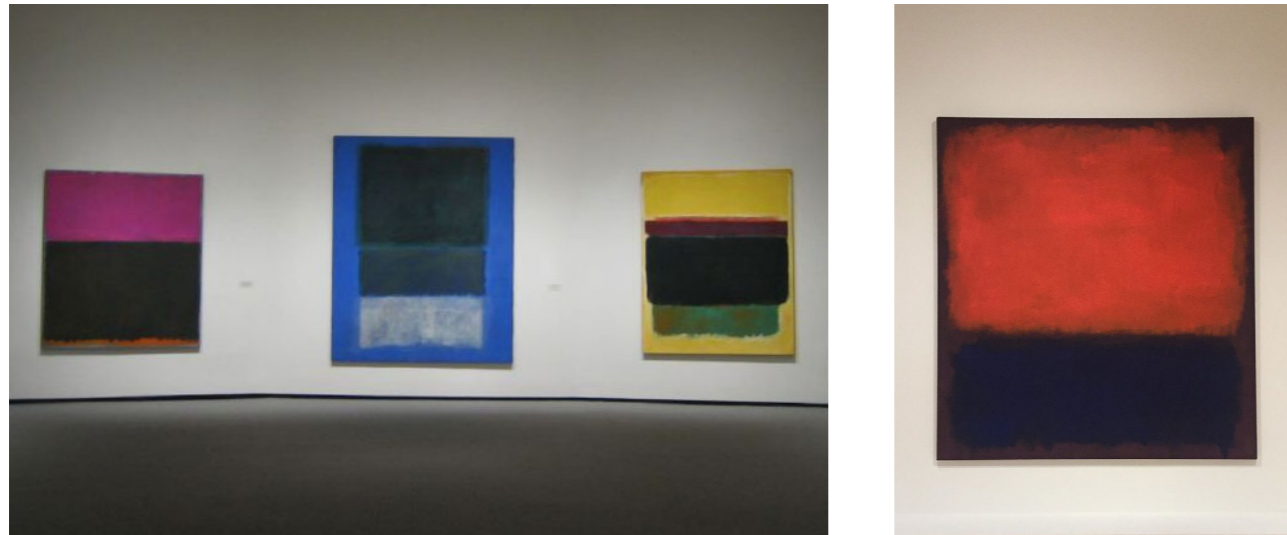


Image 5, 6 Examples of Mark Rothko's art

In the time when abstract expressionism was often misunderstood and actively opposed, with artists often accused of elitism, lack of skill, subversion of traditional way of life and even support of communism, the creators saw themselves as a vanguard (Sandler, 2009). One of those movements was color field painting, that lasted through the 1950s and 60s, characterized by large areas of a single color.

The large canvases of Rothko and Motherwell invited the viewer to be enveloped in an ecstatic void of colour. The scale was critical. They rejected European representation in favour of expressions of the vastness of the American landscape. The paintings are filled with colour, yet empty of form. They focus on the moment of encounter, of here-and-now. Barnett Newman announced 'we are re-asserting man's natural desire for the exalted, for a concern with our relationship to the absolute emotions'. Emotion and colour are therefore intertwined. Colour can exert a powerful tug on our state of mind, on our well-being (McLachlan, 2012, p.3).

A lot of the reasoning for this approach to painting came from removal of certain aspects that influence the outcome, in earlier movements emotions (angst) were removed, and in case of color field, the artist's hand. To

get rid of the 'brushiness', thinned paint was applied by soaking a layer into the canvas, that was treated as a field. This method revealed the fabric (Sandler, 2009). Similar focus on technique was present in earlier movements, like action painting with its method of dripping paint. With this, field painters believed that through honest improvisation, with the 'truth' being the only controlled part, they would achieve authentic, abstract 'self portraits' (Sandler, 2009).

"Painting was essentially a subjective or inward-looking process. What they ended up expressing was the tragic mood as they felt it of the decade-an embodied mood" (Sandler, 2009, p. 18). "The Field painter used improvisation to create nonobjective signs, symbols and images, that were at once personal and suprapersonal in that they evoked what the artists termed "the Sublime" (Sandler, 2009, p. 18).

Similarly to how art critics created terms and frameworks that were not approved by the artists themselves, such as the notion of formalism, Mark Rothko became associated with the movement, although he did not see himself as part of it. Despite visual similarities, in contrast to some motivations presented by the movement, he claimed not to be an abstractionist and to be interested in emotions. He claimed his art to be 'tragic and sublime' (Sandler, 2009).

Op-art



Image 7 Bonn Law University facade by Viktor Vasarely (1969)

Op art (short for optical art) is a term coined in 1964 for "geometrical abstraction aimed at producing some striking visual impact on the observer" (Wade, 1977). The artists have taken inspiration in the recent developments of science, as well as earlier movements that utilized optical effects, like postimpressionism, early abstract art or even patterns found in historic architecture, including Islamic art or Roman mosaics. It was relatively short lived, rising to mainstream in the 1960s, being used even for the logo of 1968 olympics. The movement later rapidly declined, often being criticized for using visual trickery, being an extension of experimental psychology or exploiting known processes already described by science, in general with its artistic value being questioned (Wade, 1977).

Optical art is usually characterized by pristine geometrical figures and its production is immaculate. Optical art is free of all representational forms, that is, shapes which we readily associate with ordinary objects around us are absent. Optical art goes beyond most of the abstract art of the past in that it uses simple forms deliberately for the purpose of evoking a pronounced visual stimulation. The total effect of an optical art piece may be agitating (to one art critic' it represents an "assault on the

retina") or it can be calming, depending on the piece and the mood of the viewer. It is hardly ever dull, but certain examples can, for some people, actually be unpleasant (Oster, 1965, p. 1359).

According to Oster (1965) it uses techniques such as color (juxtaposition of colors to achieve optical effect, commonly using red and blue, as well as taking emotional impact of colors into account), three-dimensionality (use of perspective, foreshortening or orthographic projections), optical components (lens effects, often to achieve sense of motion), Moire (superposition of patterns of curves to achieve a different pattern), theory of edges, art without optics (such as study of phosphenes). Wade (1977) also mentioned afterimages (shapes appearing after viewing high contrast patterns), Hermann Grid (grey dots appearing at the intersections of white squares on black background), gestalt grouping principles (elements of a larger pattern are visually combined according to proximity), distortions and movement (impression of movement within a pattern) and visual persistence (in kinetic works of art, where moving elements create an image). Other methods included even using electricity or psychedelic drugs to induce or alter the optical effects (Oster, 1965).

Le Corbusier

Le Corbusier had a profound interest in color and experimented with painting himself. He used colors in housing in Pessac to deliberately create spatial effects and experiment using various aspects of painting. In Weissenhofsiedlung, with colors, he expanded space and created connections to the site. He preferred restricted palette, using bright colors against an unsaturated background (McLachlan, 2012).

In 1932 he chose 43 colors from a wallpaper company Salubra and displayed them as 'color keyboards', similar to the piano. "Le Corbusier conceptualized the architectonic color in three main ideas: 1) color modifies space, 2) color classifies objects, and 3) color acts physiologically upon us and reacts strongly upon our sensitivities" (Serra, Manav, Gouaich, 2021, p. 503). He used subjective judgement of colors, such as warm-fresh, melancholic, violent or calming-exciting. The palette and methods were used later, throughout his career.



Image 8 Houses in Pessac

Donald Judd



Image 9, 10 Stacks (1978) and Stage Set (1991)

Donald Judd was an artist known for his three-dimensional works made out of industrial materials, repeated series called stacks, boxes and progressions (Meyer, 2009), associated with the minimalist movement, but "he preferred to describe his own work as 'the simple expression of complex thought'" (Tate, 2004). According to McLachlan (2012), his work is grounded in the explorations of color field painters. He was concerned with the space between the objects. Despite use of base colors, like red or blue, the colors themselves were of secondary importance, as he studied how they changed the perception of the object, attempting to discover the unknown within the rational. "Black would blur the edges of an object, white would diminish it, but red, by contrast, gave sharp definition and a quality of light surrounding the object" (McLachlan, 2012, p. 67).



Supergraphics



Image 11 Interior of a sport hall at the Sea Ranch by Barbara Stauffacher Solomon

Supergraphics is a form of large graphics in architectural space and can be used for purposes such as wayfinding, branding, decoration or transformation projects (Wagner, 2022). "Supergraphics in the city design is considered as a special form of artistic synthesis of graphic design and architecture in the process of organizing the built environment of the city at various levels (urban ensemble, architectural object, subject forms)" (Mikhailov et al., 2020). They were developed in the mid-1960s, with the name coined by C. Ray Smith in 1967, who sees them as a part of larger supermannerist trend in postmodern architecture, which opposes modernism with "its systematic manipulation of established principles, its alteration of scale, its

reordering of surface detail- which is similar to sixteenth- and seventeenth-century Mannerism, but augmented" (Smith, 1977, p. XXIII).

Supergraphics are gigantic, superscale, and double-scale designs painted or otherwise applied to architectural surfaces, either exterior or interior, in order to produce an optical effect of expanding a space or volume. Supergraphics start with two-dimensional forms that become three-dimensional typefaces, flat outlines of solid geometric forms- spheres, cones, or cylinders- or fragments of representational photomurals from billboard advertising. Generally they create optical effects; always they destroy architectural planes, distort corners, explode the rectangular boxes that we construct as rooms, and consequently change architectural scale. In the purest supergraphics the fragments of forms cannot be contained within the interior volume or the exterior volume. As a consequence, the viewer completes the fragment as a gestalt in his mind's eye. His vision expands beyond the volume into the outer space of a bigger world (Smith, 1977, p. 270).

Supergraphics were specifically described not to be primarily a decorative device and instead spatial experimentation. They use geometric forms in scale that is intentionally out of context to the space in order to expand it. Smith (1977) describes precedents to supergraphics, such as traditional features of architecture like painted moldings around doors or windows, as well dadaist designs of Herbert Bayer (tobacco shop with cigarette as a chimney), oversized paintings of Al Held, customized cars from the 1940s and 50s, highway billboards or early works by Robert Venturi. One of the pioneering projects was redecoration of Grand's Restaurant where he used large scale lettering in the interior, mirrored on opposite walls to suggest the three dimensional continuity of the type (Smith, 1977). Another notable example was the Sea Ranch, a utopian development on the coast of California. There, designs by Barbara Stauffacher Solomon were made, including the later famous interior of a sports center.

According to her, supergraphics are supposed to reinforce architecture instead of creating chaos (Baas, 2019). However, Smith (1977) notes that the concept was further developed, when Charles Moore, the architect responsible for the Sea Ranch, designed his own house, where he contrasted the unchanged 19th century façade with the interior, which was “an exercise in manipulating space vertically, in ambiguity, permissiveness, superscale, and superimposition” (Smith, 1977, p. 272). His ideas included elements that exceeded the height of one floor, as well as tubular partitions that intentionally divide the open floor plan into a more ambiguous space or use of both muted and vibrant colors. The concept became popular in apartment or shop interior design, but also became prominent in ecumenical churches, where it could tie up spaces used by different faiths together. Other idea connected to supergraphics was use of projections, called ‘superimposition’, where they could be used to achieve ‘instant interiors’.

After the interior designs, the idea was expanded into exterior space as well, with the

early examples being a form of advertising, such as a mural for a shoe repair shop, a guiding graphic at the entrance of a ski resort, a cruise ship hull painting or a billboard for a fabric store inspired by Venturi’s restaurant interior (in 1963). Supergraphics were also used to aid circulation, increasing clarity and efficiency of traffic, in places like subway systems, lifts or large interiors, such as offices. Soon, in the early 1970s, the idea became commercialized and with mass accessibility lost its ‘frontier spirit’. Producers of wall or floor tiles began using the term to market their product and many creators started to distance themselves from having their work described as supergraphics, which Smith (1977) called a ‘full architectural circle’. While no longer being a coherent movement, many of the developments of the supergraphic designers are still used and the name itself did not vanish. Interestingly, in contrast to their original design purpose, the term is used by some authors to describe large sized advertising, such as murals, that create even more visual chaos than traditional billboards (Glaser, 2015). In that case the prefix super- most likely refers mostly to their scale.

SPECIFIC REFERENCES

Rothko chapel, 1971



Image 12 Interior of the chapel

A non-denominational chapel serving as a spiritual space for all religions, in an octagonal shape. Inside there are 14 paintings in black, but differing in hue, in forms of triptychs and single paintings. (Mark Rothko, n.d.)

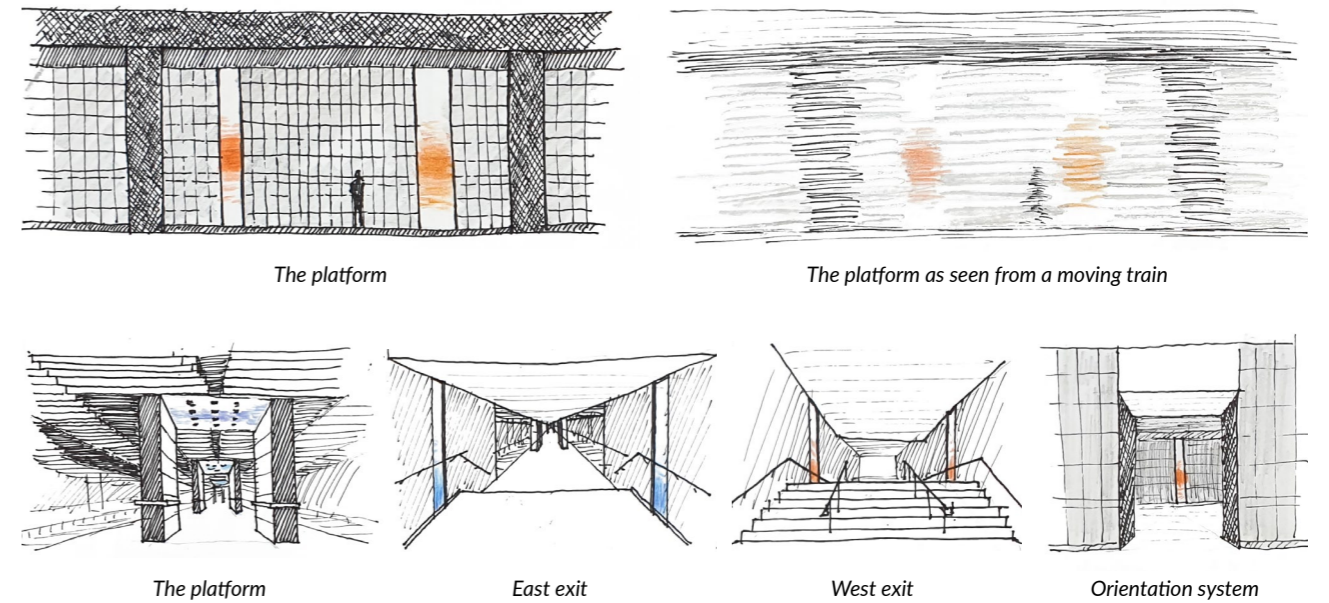
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2D pattern shaped to create illusion of 3D space

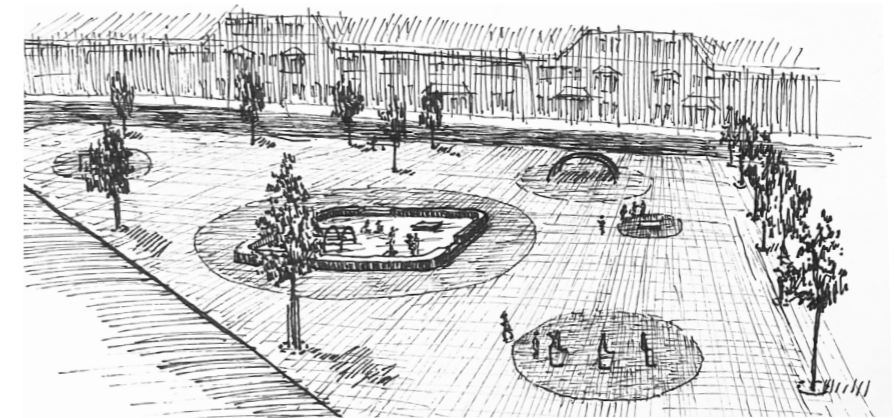
An optical illusion on the floor of the passage. While on photos, the effect is clear, in reality it needs to be observed from a specific point to work, also even small amount of dirt breaks the illusion.

Interior of Warszawa Śródmieście railway station, Jerzy Sołtan, Zbigniew Ihnatowicz, 1963



The station’s interior was designed by a team from Warsaw Academy of Arts, under the leadership of Jerzy Sołtan. The contributors included the artist Wojciech Fangor, who used op-art methods. Colorful mosaics in brightly lit niches, that contrast with other materials, such as stone or rough concrete, are supposed to both direct the flow, with different colors for east and west, as well as create an optical effect when observed through the window of a moving train. Other solutions, such as ceiling made out of shiny metal panels hiding the lamps, were supposed to minimize the impact of underground location. Currently, a lot of original features are damaged or covered up (Warszawa.pl, 2021).

Jacob Thijssplein playground, Aldo van Eyck, 1949



Van Eyck’s playgrounds “usually consisted of no more than a few simple pieces of playground equipment, benches, trees, bushes and paving grouped together and related to the structure of the city on a basis of equality” (Ligtelijn, 2019, p. 32). “The playgrounds subsequently developed into a polycentric network that became increasingly expansive and intricate” (Ligtelijn, 2019, p. 32). In Jacob Thijssplein, he planned the placement of the objects in an ‘eccentric’ way in relation to rows of trees and street layout. “The pieces of playground equipment are placed centrally in their circles of clinker bricks within the expanse of white concrete tiles, forming a unit, like a hat and its brim. The circles bring the playground features closer together, preventing them from swimming around loosely in the large playing area. But first and foremost, they activate the ground plane, revolving, narrowing and widening between the circles, as if the interim areas are even more important than the circles with their playground features” (Ligtelijn, 2019, p. 35).

Twilight Epiphany Skyspace, James Turrell, 2012



Image 13 View during day

One of Turrell's 'Skyspaces', a pyramid shaped structure covered with a reflective canopy, was created as a musical performance space at Rice University campus. It features an LED lighting system, that projects light to the underside of the roof every sunset and sunrise. The skylight in the middle is a feature characteristic of his other works from this type (Architect Magazine, 2013). It creates an interesting way of framing space, its borders and interactions.

Bolt of Colour, Bridget Riley, 2017-2019



Image 15 The lines travel around the whole building

A mural based on Riley's earlier work from 1983 in Royal Liverpool Hospital. Riley was an op-art creator, presented image represents her later work, where she moved on from the black and white images to color exploration. The lines represent a palette, inspired by ancient Egyptian art (Chinati, n.d.). "We see structure, rhythm, and space, all directly applicable to architecture" (McLachlan, 2012, p. 69).

Superkilen, Superflex, 2012



Image 14 The effect of graphic elements on spatial organization

A public park in Copenhagen, designed in collaboration with the offices BIG and Topotek1. It is divided into sections called The Red Square, The Black Square and The Green Park, with each of them serving different purpose. It was designed with public participation, with many objects from local populations countries of origin installed in the space. The Black Square is described as "a classic square with fountains and benches" (Superflex, n.d.). An interesting design choice are lines painted on the surface, that stretch through the whole space, going around different objects, climbing up hills and creating visual connections.

Weaving the courtyard, Escobedo Soliz, 2016



Image 16 View of the installation

A temporary installation in the courtyard of MoMa in New York. The strings are supposed to generate different atmospheres in every part of the space. The relatively simple design, which uses preexisting walls, completely changes the look of the rather barren space and therefore how it is perceived (Archdaily, 2016).

Orange Extension, 1970, Jesus Soto

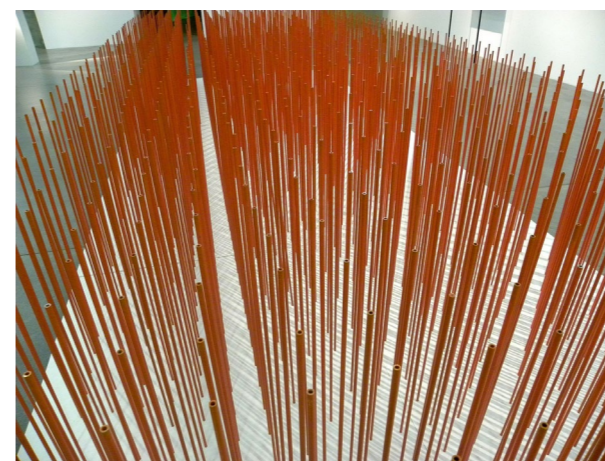
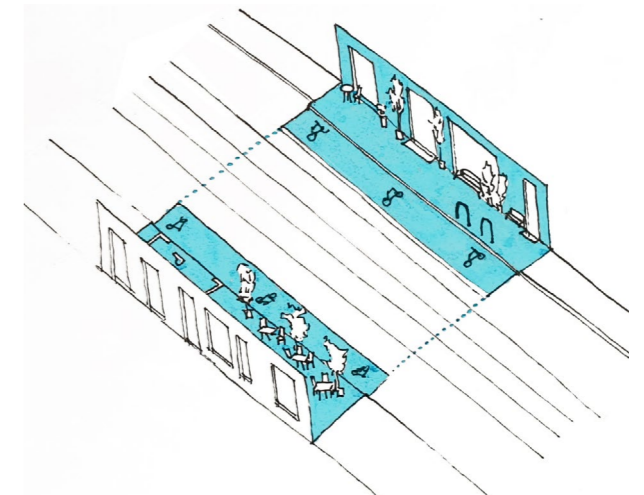


Image 17 Close up of the artwork, it reaches around half human height

Jesus Soto's work involved geometric abstraction and kinetic art, known for interactive installations made out of rods and strings, with the viewer seen as a participant of the work and sense of movement achieved through repetition (Jesus Soto, n.d.). The installation presented here is composed of metal rods painted orange.

Mierigi, Public Space, 2014



Informative role of urban graphics

A proposal to test a new street layout, that would increase the space for pedestrians, because cars drive on tram tracks and most of the lanes are unused. A simple and effective way to graphically communicate the problem to the public, without any construction (Public Space, 2022).

Confetti Urbanism, Endemic



Spatial organization with urban graphics

Transformation of a university parking lot into an active public space for the students. Inspired by random nature of confetti, it combines urban furniture with 2D graphic objects, that are supposed to direct the behaviour of the users into different activities (Endemic Architecture, n.d.).

MAIN MATERIAL

ANALYSIS OF FRÖLUNDA TORG THROUGH THE NOTION OF LIMINALITY



Pictures taken at 2 PM on a sunny day; despite early hour, the shopping mall had considerable traffic, with groups of people spending their time inside, in contrast to mostly empty passage

Transitional state of the site in history, present and future

Since its' creation, the area of Västra Frölunda is in a constant state of change. With each decade, different ideas about urban planning clash with the older. The radical replacement of rural landscape with a modern high-rise neighborhood was not final, as within years new buildings, often going against the initial idea, were added. Even the shopping center itself has grown significantly, with the original structure getting absorbed by new additions. Some changes are smaller in scale, but still affecting the space, for example the roof in the passage was added years after initial construction (Postmuseum, 1986). Another are the colored stripes on the tower blocks, which are not part of the original design (Frölunda Torg, Göteborg, n.d.). Apparently, at some point someone decided there was a need to individualize the rows of identical housing blocks. The walls of Frölunda Torg also give insight to how it was used in the past, with a patchwork of bricked up windows or layers of different brick patterns.

The modern identity of Frölunda is still defined by the 1960s architecture, however the new additions, competing with the old with their size and tectonics, might change how the area is seen, creating a complex layered landscape, which is seen as an entity of its own instead of

additions to the existing environment. It is also a completely different, more organic type of development than before, where the previous identity was mostly erased, apart from a few artifacts such as 1860s church, 1920s house or remnants of village roads (Antiquum AB, 2018a).

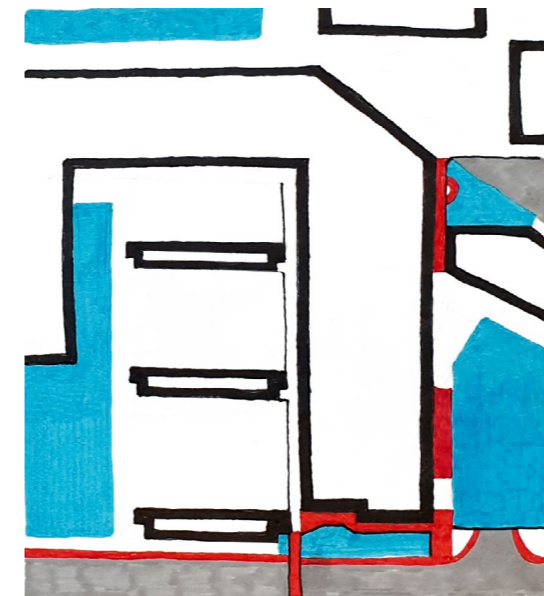
In-betweenness as a result of modernist urban planning

Frölunda follows the typical urban design ideas from its' era. The (Antiquum AB, 2018b). There is a clear separation of functions, as the residential buildings are segregated from mostly free-standing public, commercial or educational buildings. A result of this is an open landscape, where the buildings are points in space, instead of a traditional street layout. The division between private and public might be interpreted as unclear. As most of the outside space is open and accessible, the most obvious border of the private is shifted to the interior of the buildings. Some level of separation is suggested with fences or gates, but the layout does not provide significant spatial borders, compared to more traditional use of courtyards. Inspired by American solutions, the mall is surrounded by extensive parking spaces (Antiquum AB, 2018b). A result of this is that large open areas have no use from pedestrian perspective.

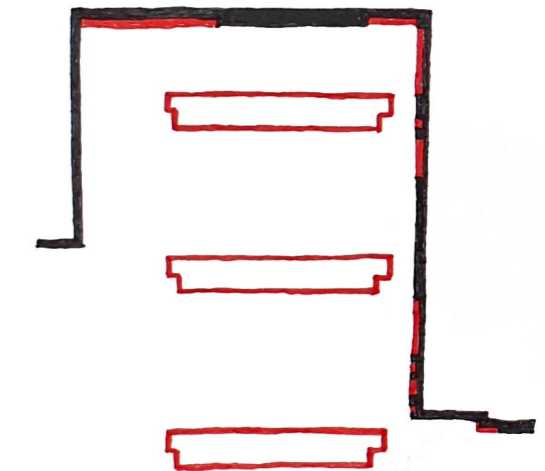
Another aspect is the separation of pedestrian and vehicle traffic. The division is very clear, with some spaces inaccessible for cars. The role of the street is reduced to vehicle traffic and the public use is shifted to pedestrian only spaces. The design makes use of terrain differences to hide the roads and loading bays below the pedestrian level, parts of which are connected

with a bridge. While providing safety and unrestricted flow of different traffics, it results in the existence of connecting spaces, used solely for movement, which do not provide any other function. Other issue might be accessibility, for example the tram station or parking spaces are located below the main pedestrian level, which creates the need to use stairs or lifts.

Emptiness



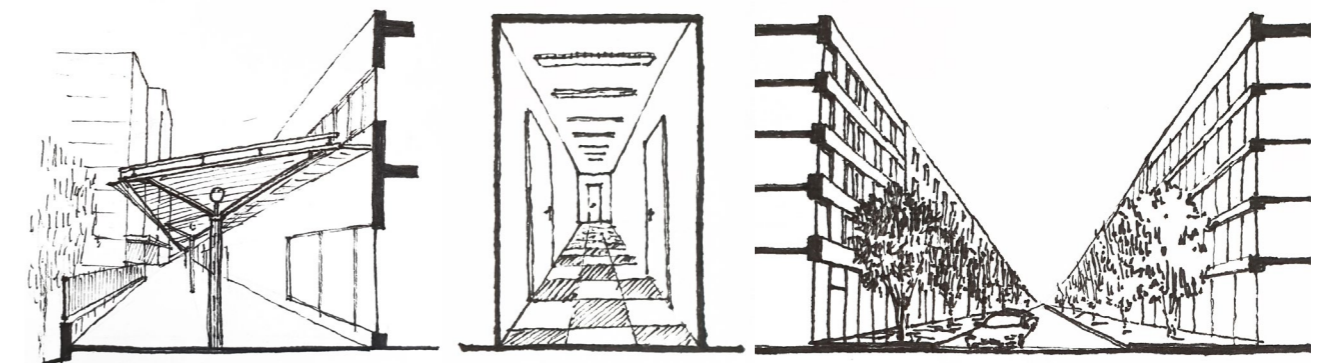
A lot of spaces, marked in red, are used only for movement, with no other purpose. Spaces marked in blue are accessible for pedestrians, but dominated by other function, such as parking.



Comparison of walls with windows (red) and windowless (black)

Emptiness, both in terms of function, as well as visual aspects, is one of the defining factors of the area. For example, a big percentage of the space is used only for movement, with no other purpose or points of interest. It can also be seen in terms of architecture, for instance a significant part of the passage has windowless walls, with no entrances or detail to attract attention.

Proportions



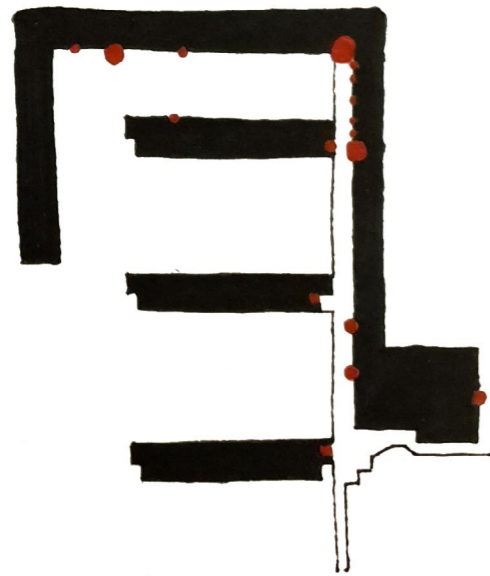
The role of proportions of urban space has a great role in urban planning, as it affects many qualities, including light, privacy or appropriateness for location, traffic and climate. For this purpose, the most important one is the ratio of width to height. Some of the proportions could be archetypical, with the place bearing them getting associated with the purpose of a typical space. The passage is narrower than a typical street. However, if compared to a corridor, despite being wider and open on one side, the passage could be seen in a similar way, with the roof visually serving the same role as the ceiling. Possibly, this adds to the perception of a transitional space.

Role of Frölunda Torg in the absorption of public activity

Possibly because of the climate or the unattractiveness of the outside spaces, the public life of the local community seems to be absorbed by the interior of Frölunda Torg. It is a meeting point for both the youth and the elderly. Apart from the spaces of restaurants and cafes, some seating areas are provided inside. An interesting feature of the space, which affects the local life, is the opening hours of the shopping mall. When it is closed, the shortcut to the tram station is cut off, which results in a need to circle around the building through mostly empty spaces with inadequate lighting, which can affect the sense of safety, creating a problem both for the early morning commuters and people returning late. It can be speculated whether this kind of planning is intentional, to encourage movement from the commercial spaces on the way to the public transport, as Frölunda Torg creates a certain barrier.



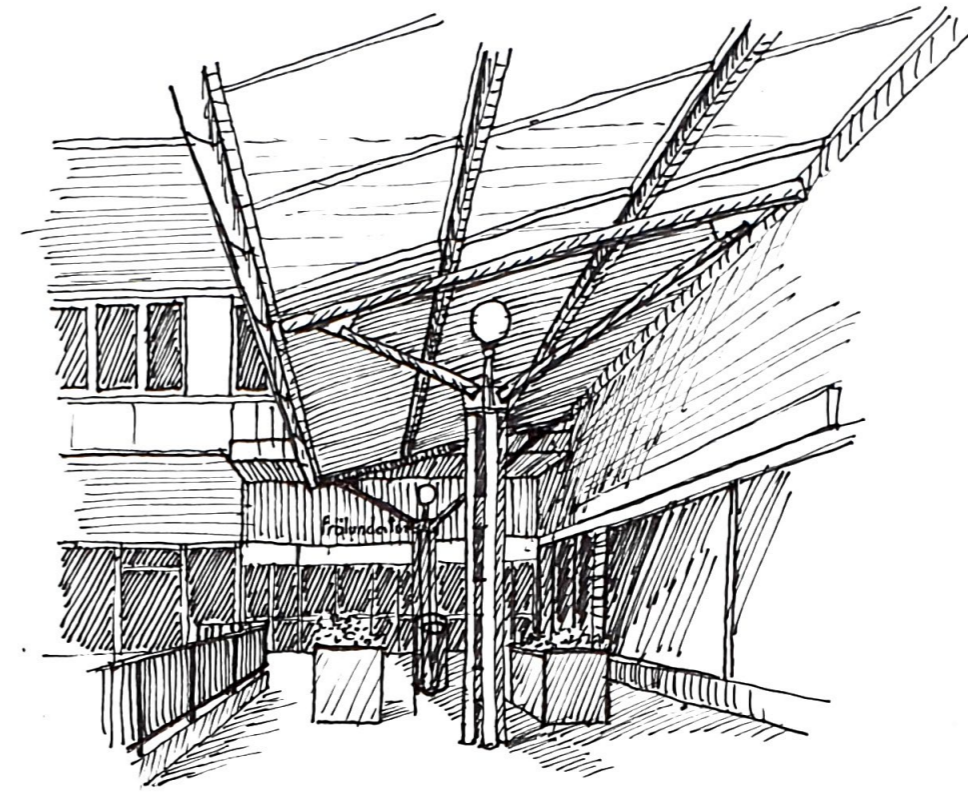
Changes in public movement cause by opening hours of the shopping mall during the day and night/evening/early morning, publicly accessible space is marked with red



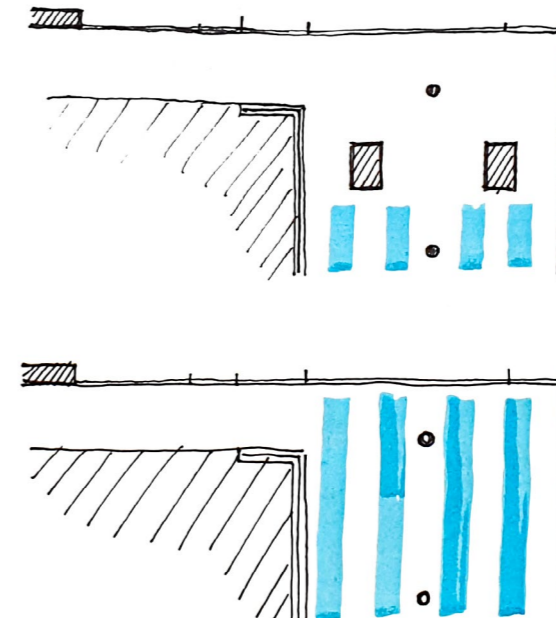
Public entrances

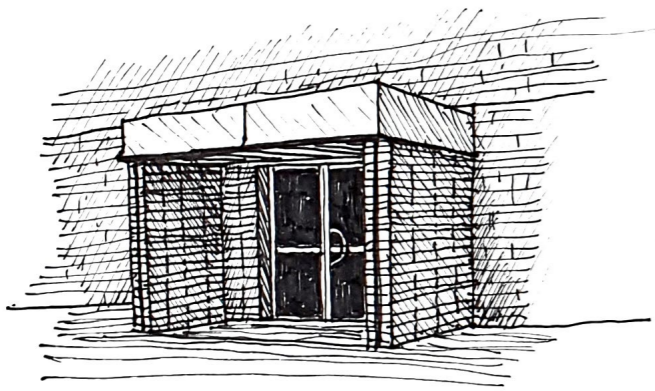
The passage itself has limited attracting points, with the most frequently visited being Systembolaget, hence it is used mostly on the way through, in and out of Frölunda Torg. There are other businesses there, such as pet shop, funeral home, delicatessen, gym or bank, but they do not provide any reason to stay in the area. The transitional character is enhanced through its' linear, corridor-like shape, enclosed from all sides through most of its' length. It borders with the courtyards of the housing area, but does not interact, apart from having gates in the fence.

Borders, separation and interfaces

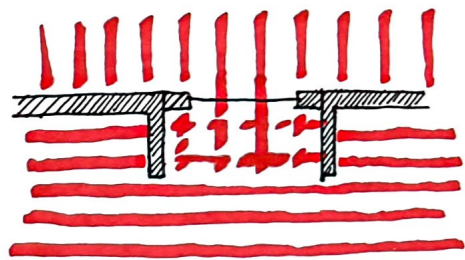


I tried to document some characteristics of the site, that can be interpreted as transitional or acknowledging the effect of it. One thing I observed is the placement of flowerpots right before the main entrance to the shopping center. It implies there was some motivation to create a threshold that separates the entrance space from the passage. With part of the way blocked, it forces people to slow down and go around them.

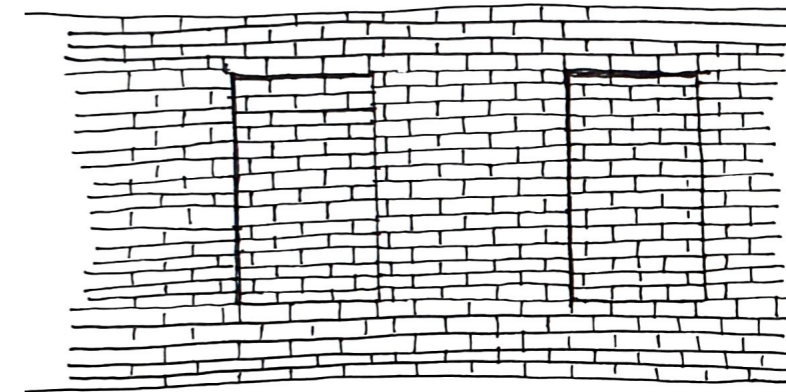




Another observation deals with entrances to the staff areas. By separating doors from the passage with walls, a threshold space is achieved, that belongs clearly neither to inside and outside, which creates another degree of separation and moves the border of 'private' away from the entrance.

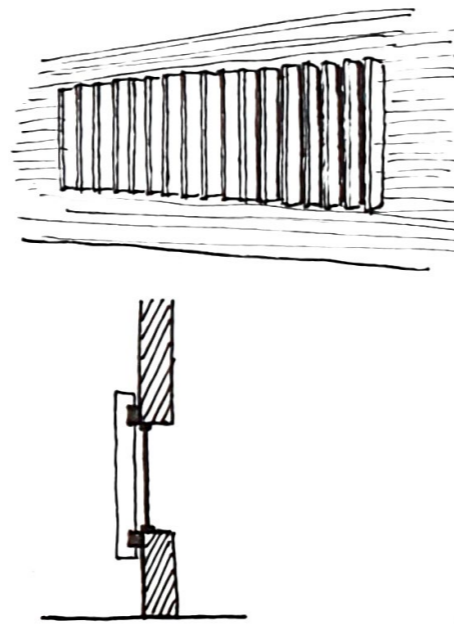
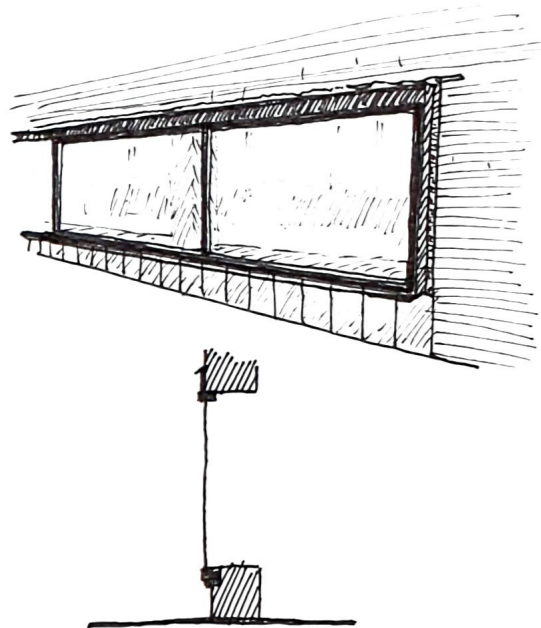


Relics of the past

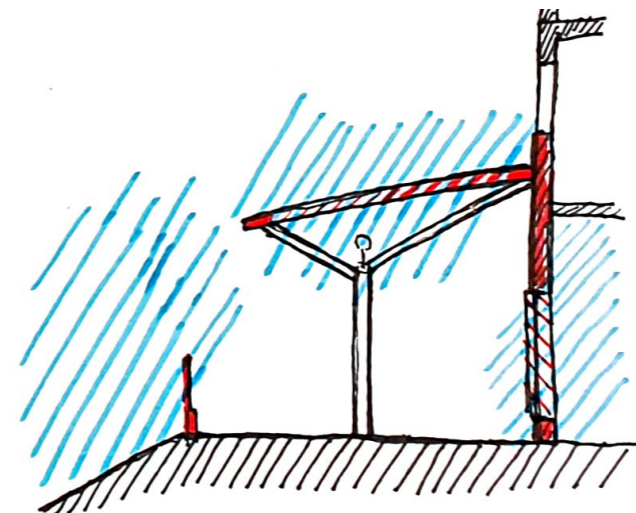


An interesting aspect, that documents all the changes in how the building was used before, are bricked up windows. Clearly visible outlines and different brick patterns show how the facade used to look like in the past, signifying the transition.

Interaction of bordering spaces



Similar observations can be made for windows, where the function of the space behind them determines how they interact with the outside space. For example, windows to the shops are placed slightly outside the wall, which might have the effect of bringing the interior closer to the public, with the inside reaching out outside. In contrast, window that leads to staff area were hidden behind concrete panels, which create empty space in-between them and the window, thus further separating the interior from the public.

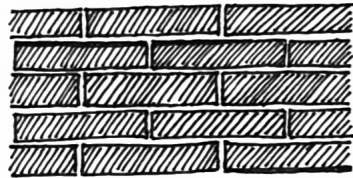


Despite clearly being a place of its own in the wider area of Frolunda and having clear spatial borders, the outside spaces blend with the passage through openings. Objects, such as trees or the glass roof, provide a view outside, but filtered through them.

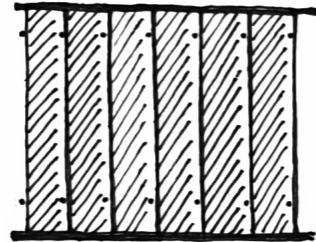


Views: open and obstructed

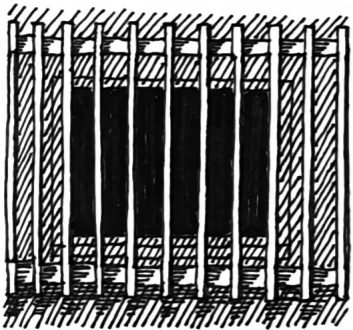
MATERIALITY



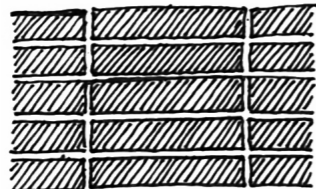
Brick pattern #1



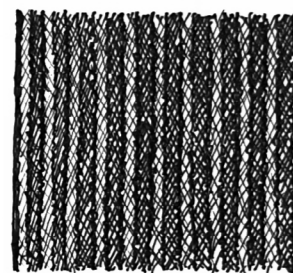
Corrugated metal panels



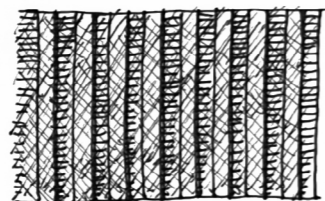
Concrete sunshades
(removed)



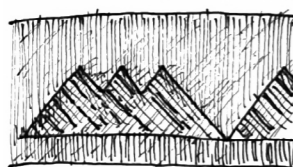
Brick pattern #2



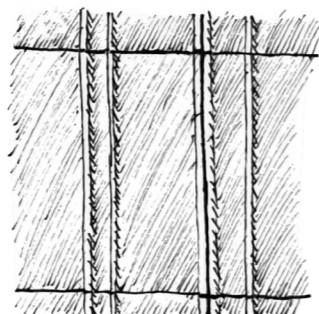
Rough corrugated concrete



Smooth corrugated concrete



Relief on the concrete bridge



Prefabricated concrete panels

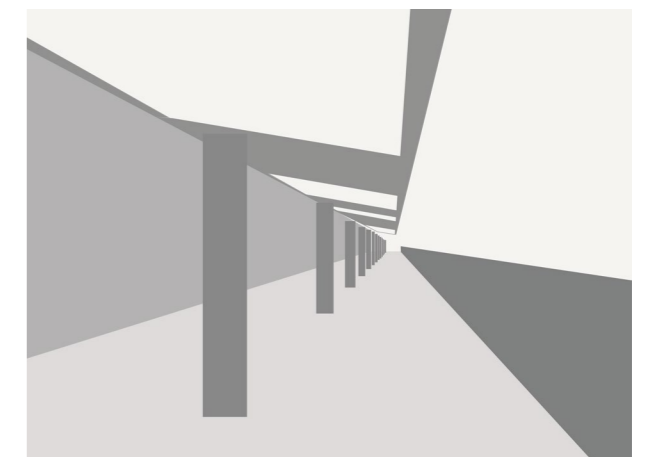
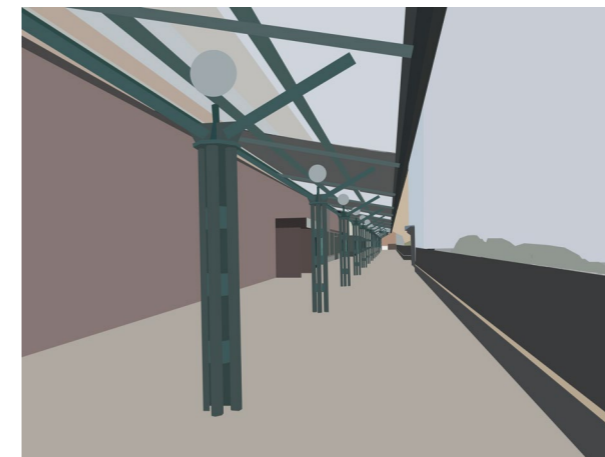
The materials within the space of the passage are typical for its time and place, including bricks, concrete and metal panels. They seem to have a largely neutral color scheme, true to the nature of each material. As similar solutions from same time period can be seen in many other places in the city, they represent a relic of a bygone era, as today they are replaced by modern alternatives. In contrast to contemporary ones, they have a rough and course nature, with many uneven parts or gaps, that are a direct result of the way they were made and used, leaving a trace of the craftsmens' work.

Typically for modernist architecture, the space of the passage does not have ornamentation, with different textures and patterns providing an 'honest' replacement. The only exception is the bridge at the end of the passage, that has a relief decoration, reminiscent of a hilly landscape.

COLORS AND DETAIL

The space can be interpreted as largely neutral, with various shades of grey, brown and other low intensity colors. The only saturated colors in the area are the blue stripes painted on the towers. The limited palette is inviting to use contrast with brighter colors as a method, as any of them would have a significant effect in the monotonous space.

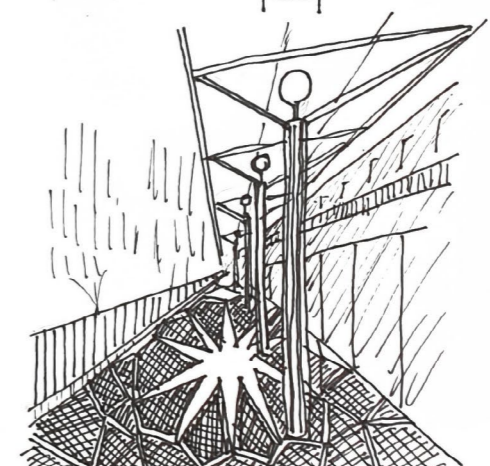
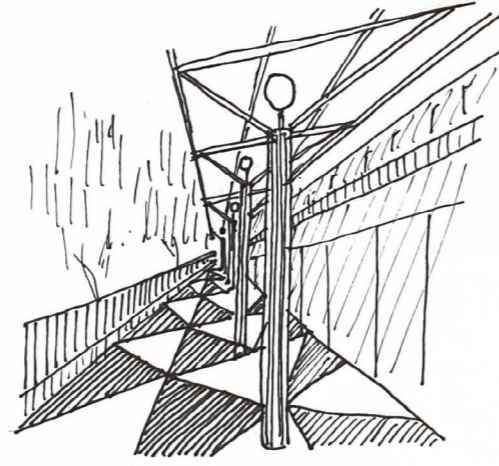
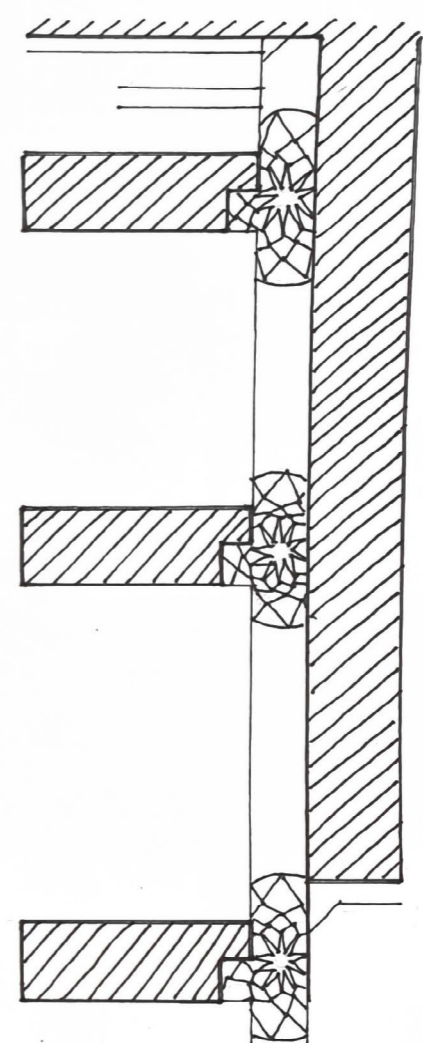
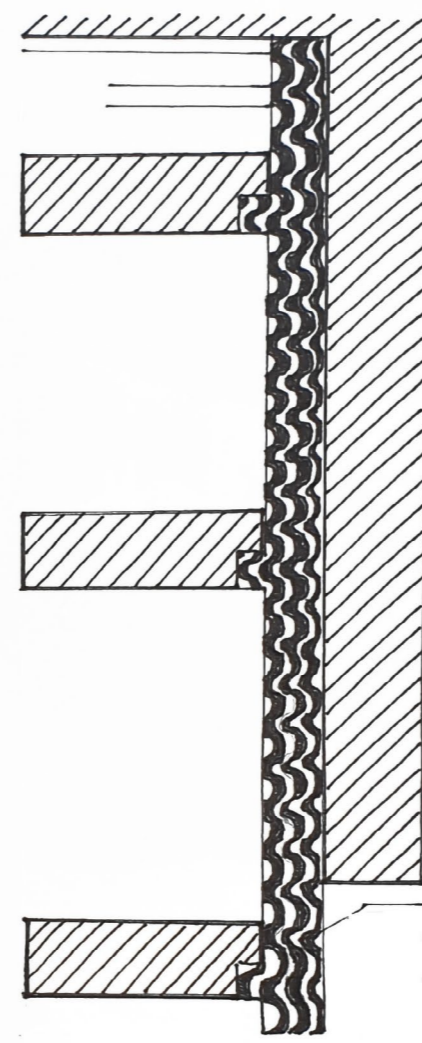
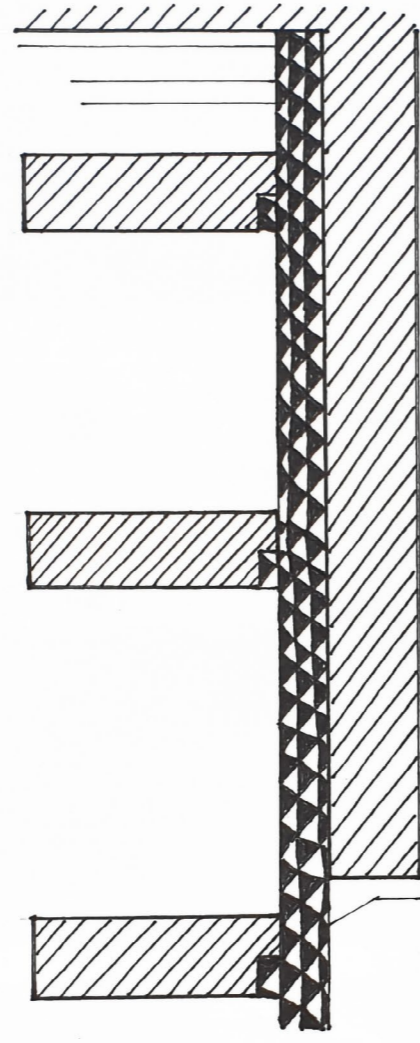
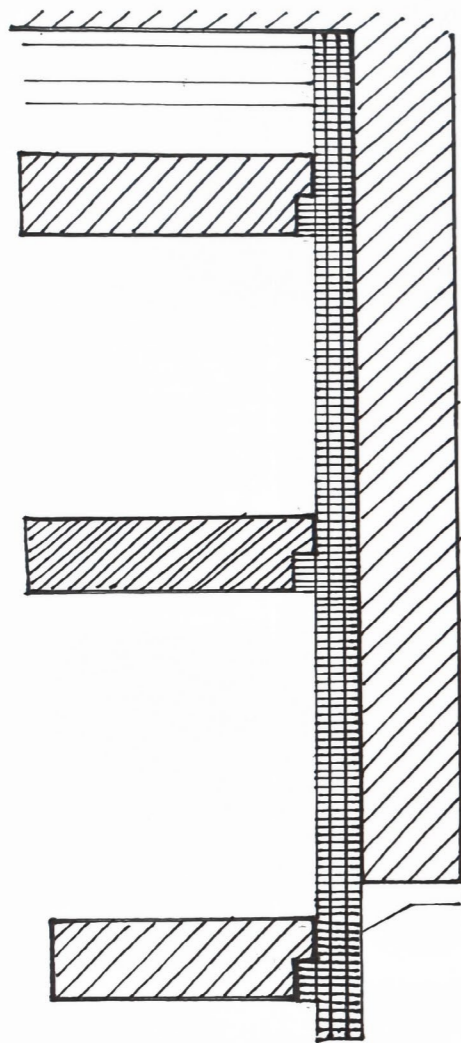
Most parts of the passage are lacking in detail and appear empty, with large surfaces finished with the same materials. Through the images below, it can be seen how the materiality and colors do not play the most significant part in creating the identity and spatial properties of the passage. Even with serious simplification, such as removal of texture and color, it would still likely retain its characteristics.



TEST OF URBAN FLOOR PATTERNS

As one of the first studies, I applied geometric patterns from existing public spaces: Lijnbaan (one of the first shopping streets, that served as an inspiration for many modernist designs, very likely including Frölunda Torg), Sergels Torg (a public space in the center of Stockholm, where the pattern is one of the defining elements of the space), Copacabana (a beach promenade in Rio de Janeiro, similar in linearity) and Piazza del Campidoglio (square in Rome designed by Michelangelo in 16th century, with the pattern concentrating on a sculpture placed in the middle).

Some of them seem to highlight the linear layout, like the pattern from Lijnbaan or Copacabana, making the effects of perspective stronger. Since the movement in the passage is linear between the opposite points, those type of patterns should be avoided, as they might even increase the transitional qualities. The pattern from Sergels Torg appears to extend the space horizontally, which might be useful to reduce the impact of corridor-like shape. The pattern from Piazza del Campidoglio has obvious concentric qualities, but does not seem to be clear in the scale of the passage. While replacing the current asphalt pavement with a higher quality and more elaborate design could have some effect on how the space is seen and experienced, it is unclear whether it would attract the public to stay. Another thing to consider is the scale of the pattern, as it might affect its clarity.



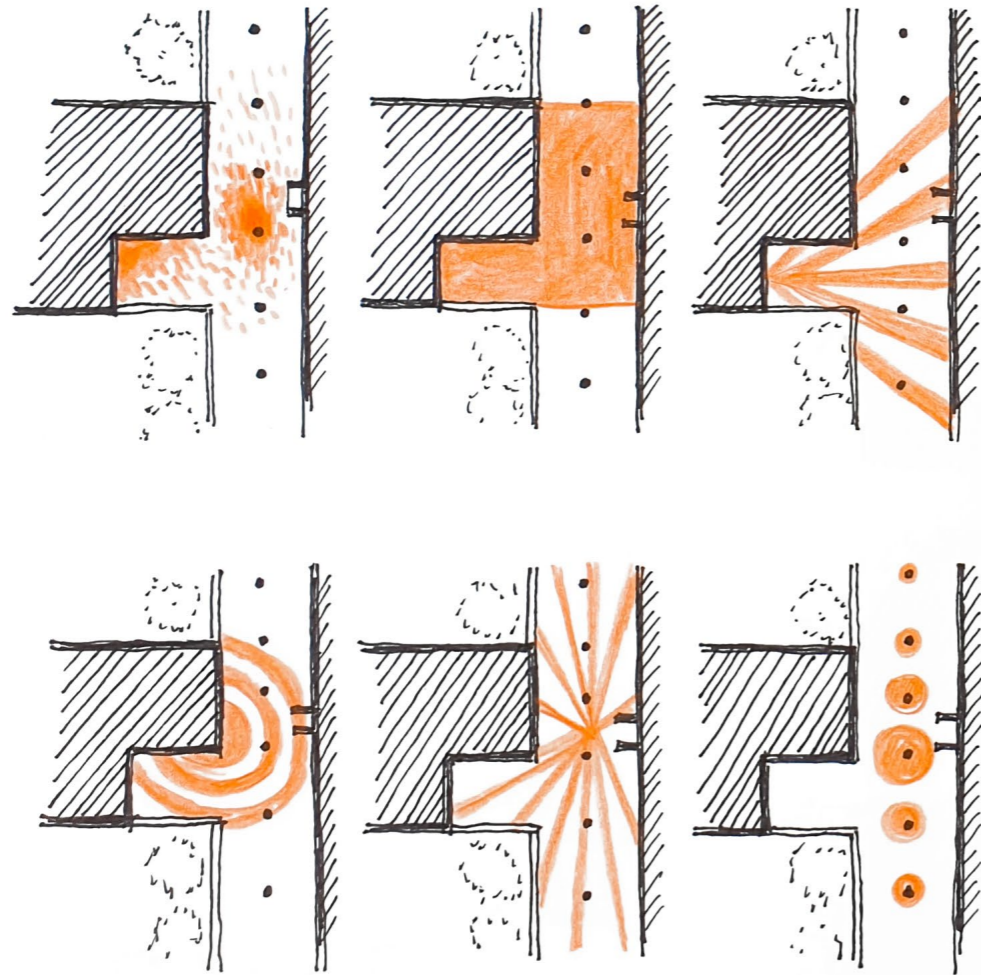
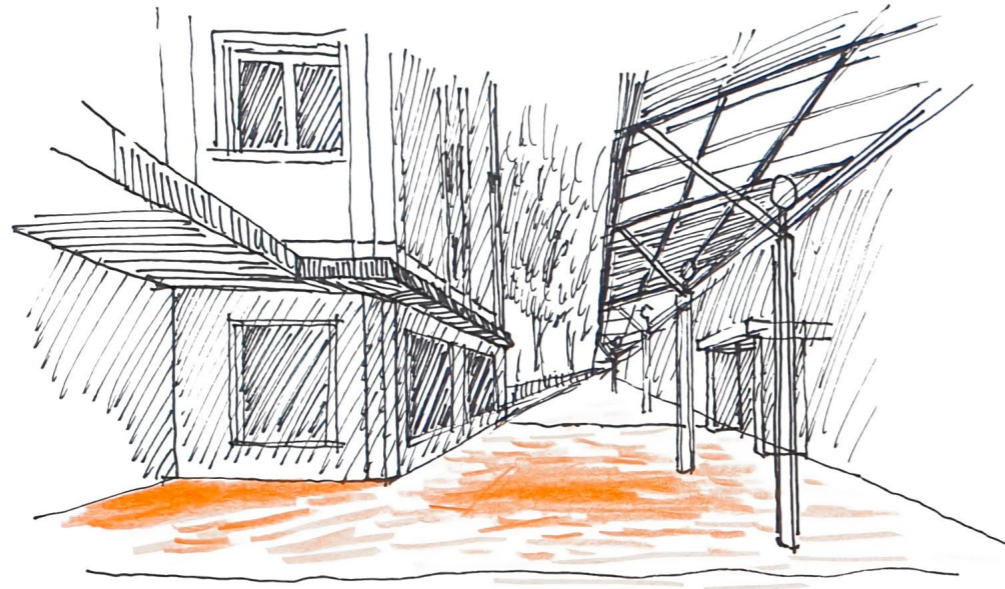
LIJNBAAN

SERGELS TORG

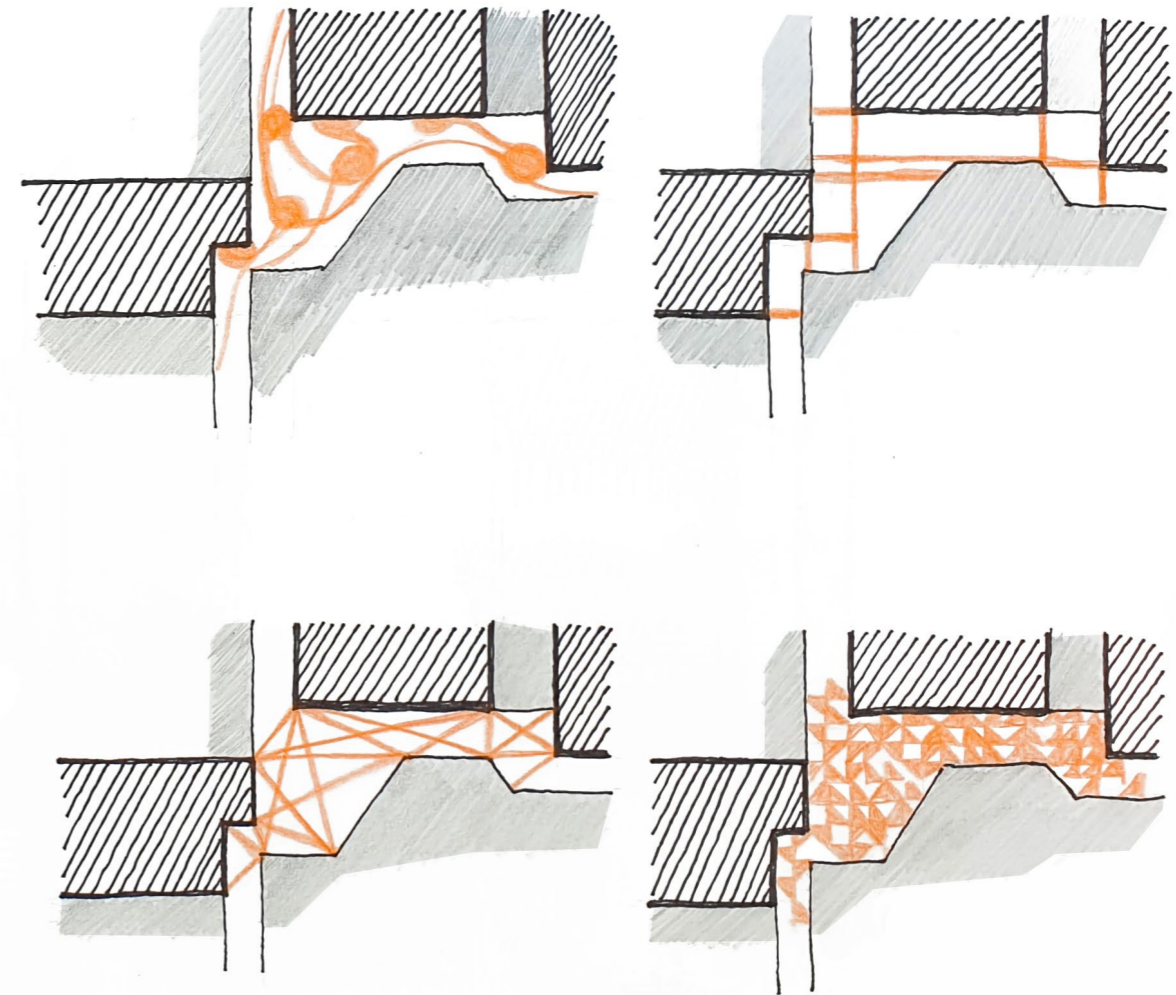
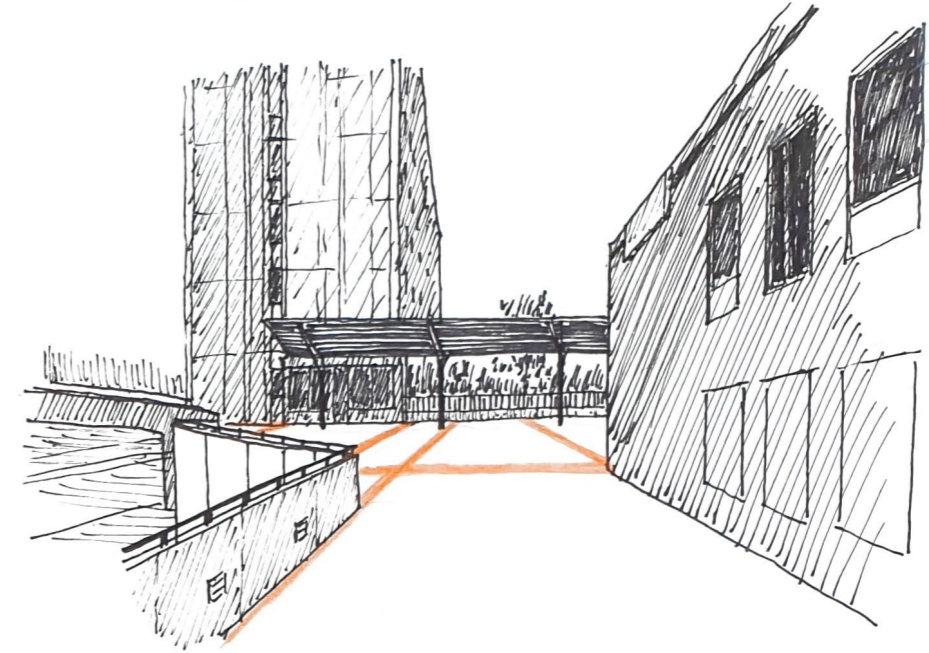
COPACABANA

PIAZZA DEL CAMPIDOGLIO

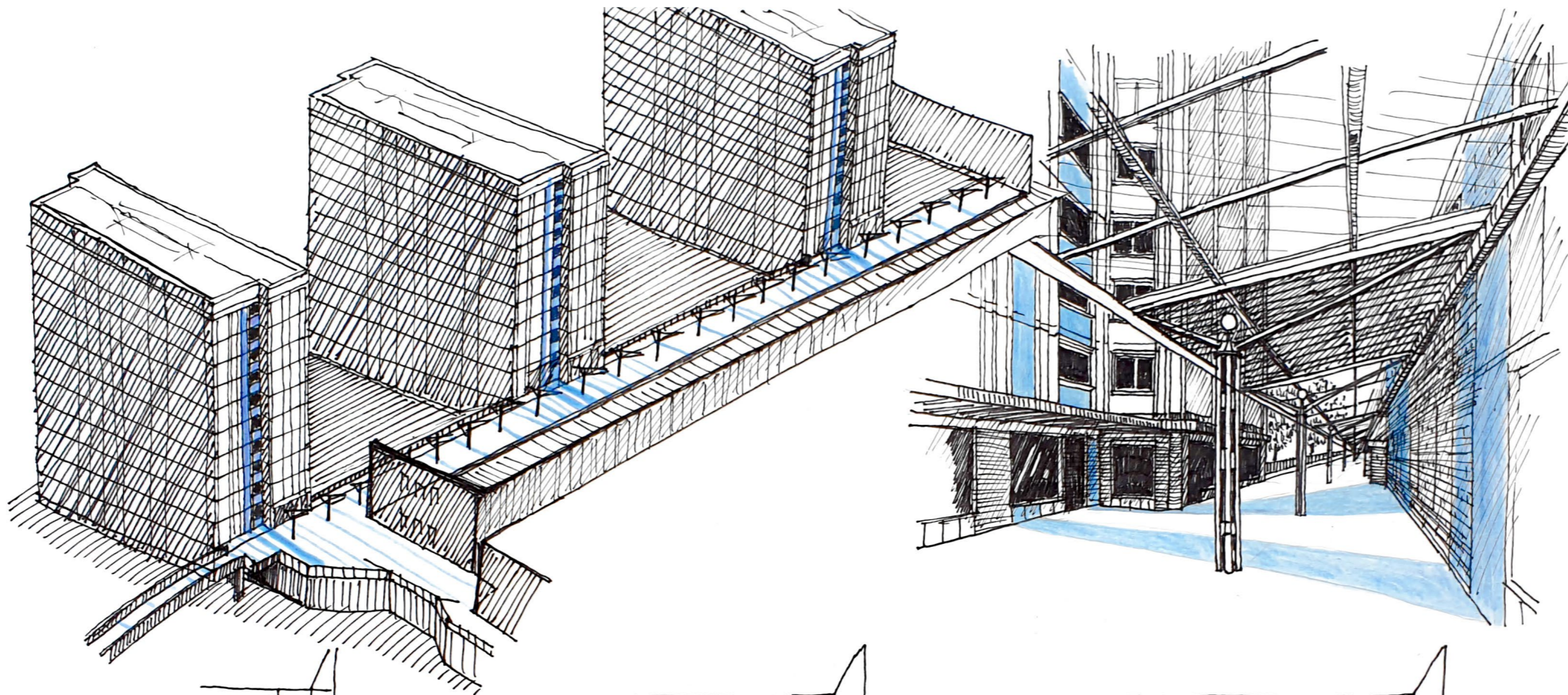
URBAN FLOOR GRAPHICS



This test attempts to either highlight a specific part of the space, direct the public movement or to create some connections between the objects that form its borders. The approach uses the 2D supergraphic method. Effectiveness of each of them would depend on their clarity in space, with that in mind the simpler and less detailed should be more effective as seen from the distance, while the more complex could work better while being directly in the space. A possible solution would be to create graphics made out of smaller detail, that appear to be bigger and more uniform from the distance.

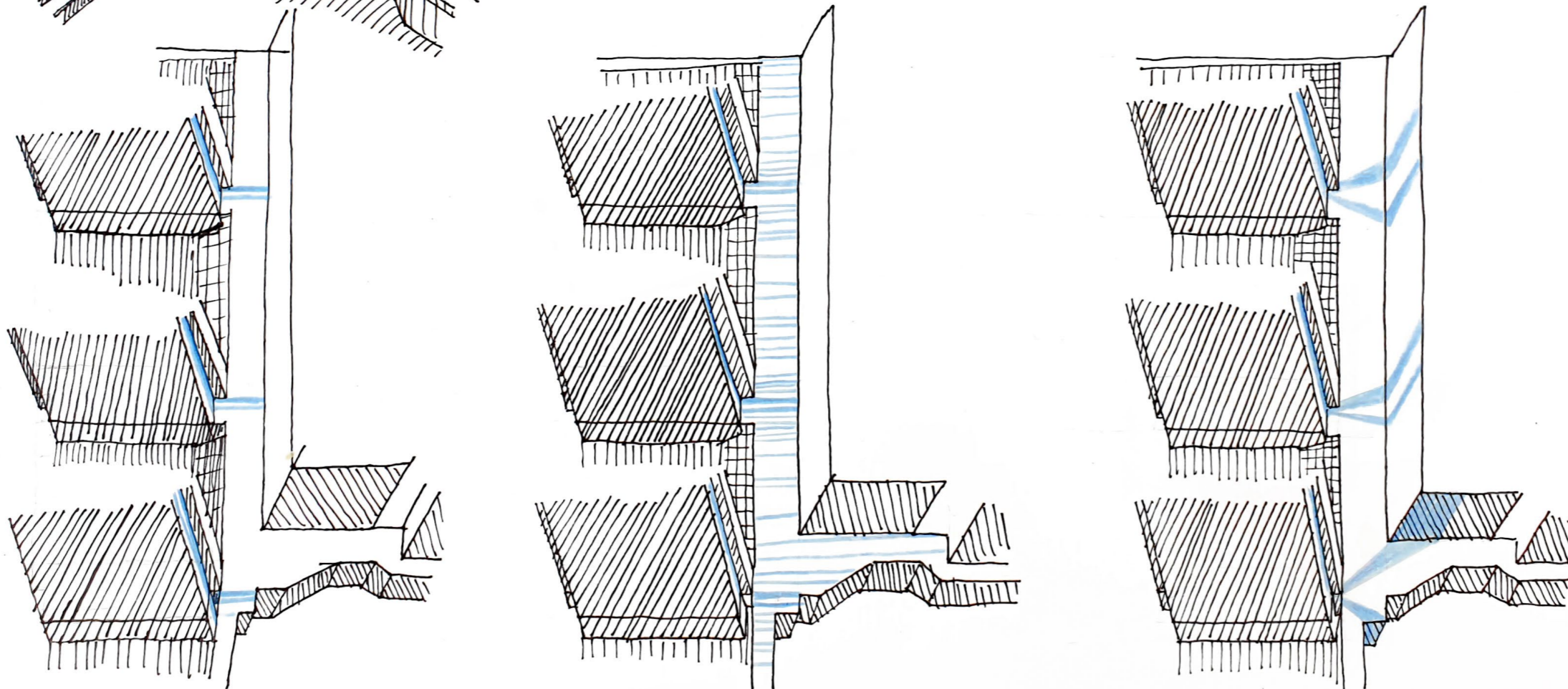


COLOR REFERENCE

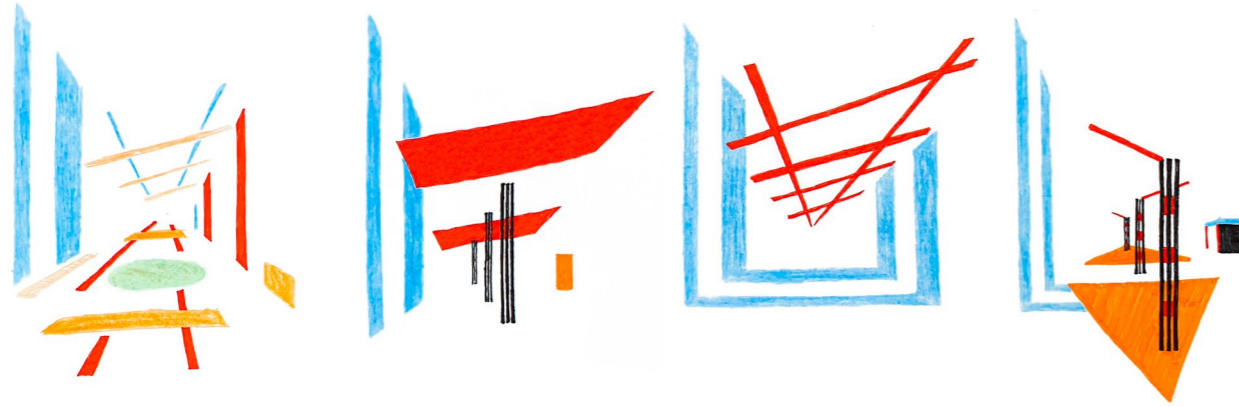


The space of the passage is largely neutral in terms of colors, with exception of colorful stripes painted on the narrow sides of the towers. Not being a part of the original design, at one point they were added to the buildings for reasons unknown, with blue used at the passage and red next to the bus station.

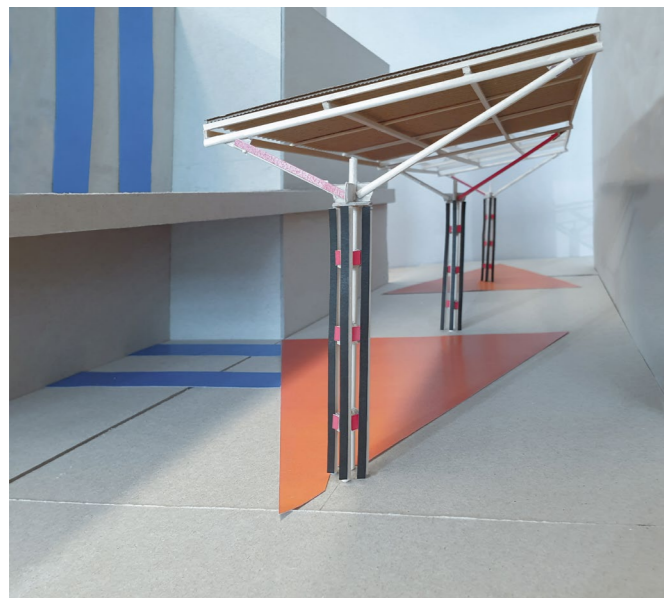
With how a part of the 'ordinary' they are right now, their effect has likely diminished. Nowadays they seem to be a natural part of the space and it is unclear how they change the perception, as perhaps they are no longer noticed, which leads to a question whether any intervention would also lose its effect over time. This sketch attempts to make use of them as the starting point of the supergraphics that would create visual connections between the vertical and horizontal sides of the space.



FIRST TEST IN 3D SPACE



The space of the passage is first reinterpreted as an abstract and monochromatic space. Some elements, like pillars, structure of the roof or enclosed entrance to the mall, are highlighted in simple colors, like red, blue, orange and black. I also added shapes that are supposed to direct, highlight or connect. I kept the existing blue stripes on the towers as a reference and part of the composition. A picture of the model without changes is added as a reference.



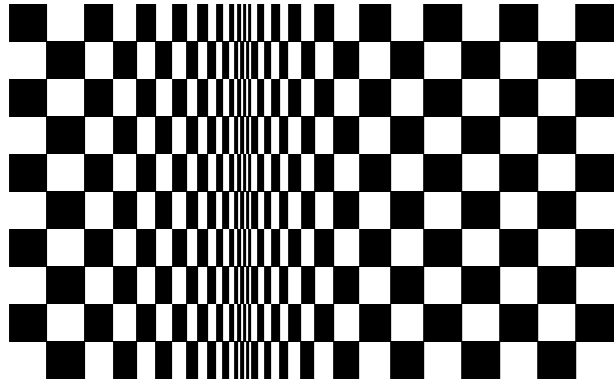
SMALLER EXPERIMENTS

The experiment involved placing black wooden blocks in a space commonly used during lunch hours. The blocks are loosely placed in a way that separates a central section of the stairs in a visible but not obstructing way. I observed that people concentrated outside of the circle, on the opposite sides of the space. Interestingly, nobody did any changes to the placement of the blocks, which may suggest that the placement was seen as intentional.

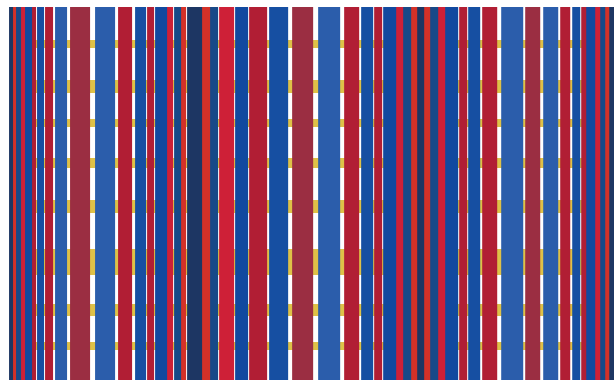


OP-ART APPROACH

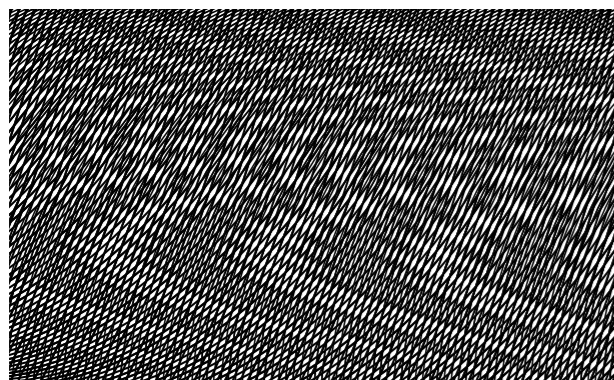
The experiment involves testing some methods from the op-art movement in the space of the model. Despite being two-dimensional, they are supposed to trick the eye into interpreting them as three dimensional, resulting in the illusion of depth.



A graphic based on the work of Bridget Riley, uses the method most typically associated with op-art. The checkerboard pattern that gets more dense towards the center creates an illusion of depth. To work in reality, it very likely needs to be observed from a distance, because small imperfections might be enough to break the effect.

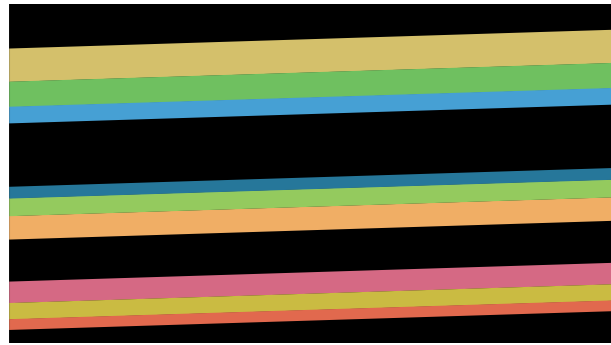


Placing contrasting stripes in the white space between red and blue stripes creates afterimages, that form an illusion of yellow lines being behind the red and blue ones. This way, an illusion of depth in a 2D drawing is achieved. I combined it with changing width of the stripes to create an illusion of curvature.



The moire patterns are a tool commonly used in op art, to create illusion of movement. However, the test failed, as the patterns were not clear. Most likely, the lines need to be very sharp and the projector lens creates blur. Also, the contrast between black and white is less strong, because the projection is transparent, so the colors are affected by the material below.

SUPERGRAPHIC APPROACH

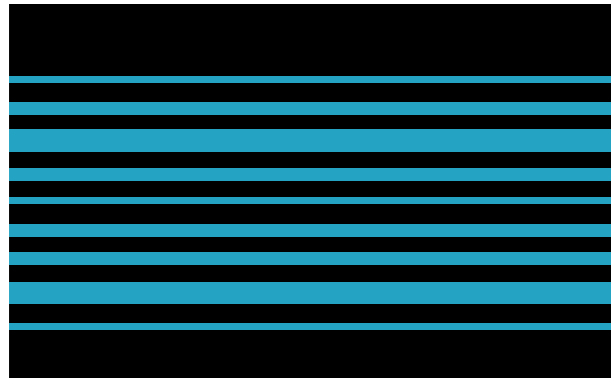


The graphics presented here are inspired by the supergraphics movement. From a simplified version, they are projected into the model, where they achieve their final shape. This method allows to test many different placements and how the graphics interact with 3D environment.

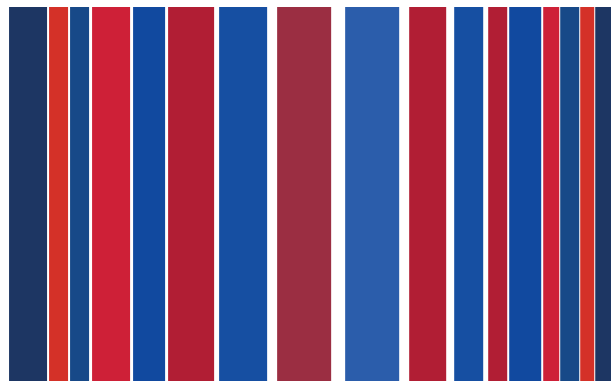
The purpose of this graphic is to tie the surfaces connected by the lines together.



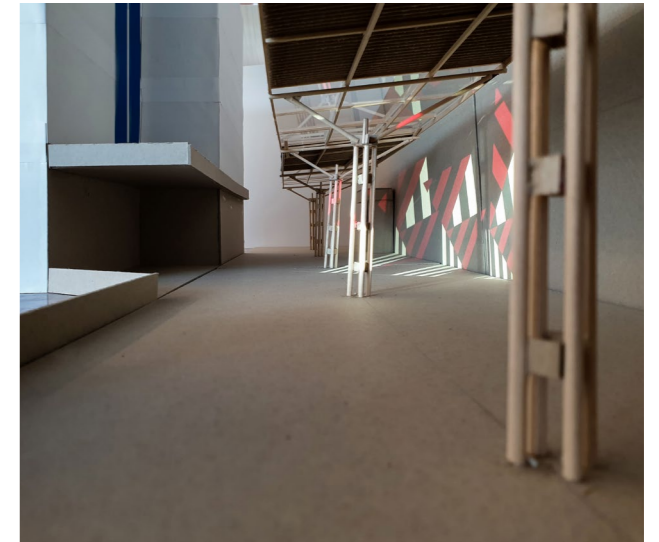
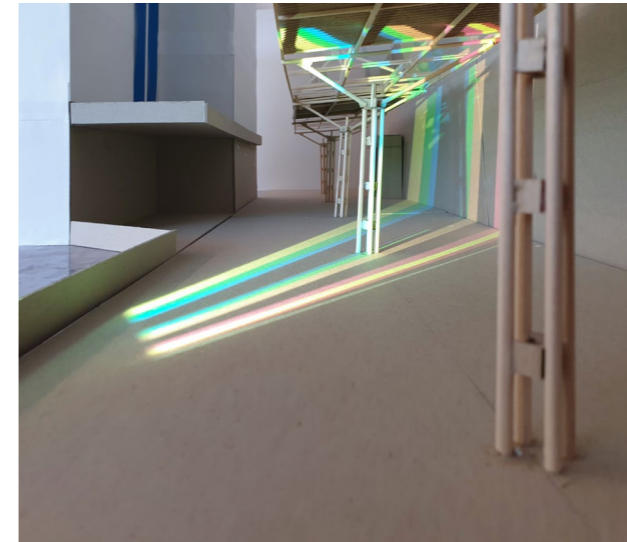
A graphic based on Barbara Stauffacher Solomon's work at the Sea Ranch. It seems to have the strongest effect when placed on strictly 2D, flat surface, very likely because the form itself already suggests some kind of three-dimensionality.



The purpose of this graphic was to extend space according to the direction of the lines. Applying the pattern to the objects located in different distances to the observer seems to create an illusion of shortening the distance, also thanks to horizontal orientation, the space appears to extend to the sides.



This graphic is using 'forward' and 'backward' colors to make a flat surface appear three-dimensional. The lines get wider in the center, to make them appear closer to the observer, making the surface seem curved. However, to achieve the intended effect, the graphic has to be placed on a flat surface.

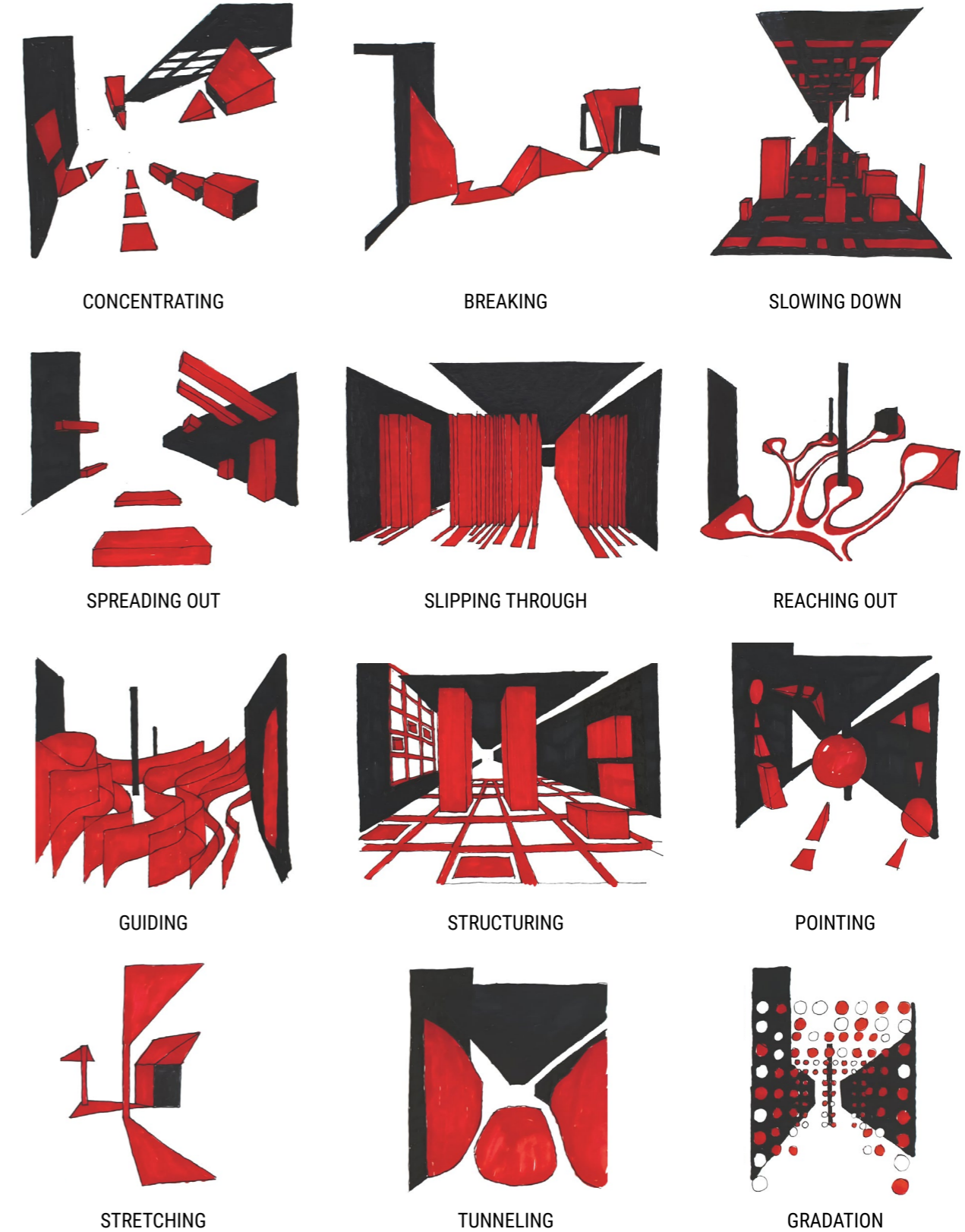
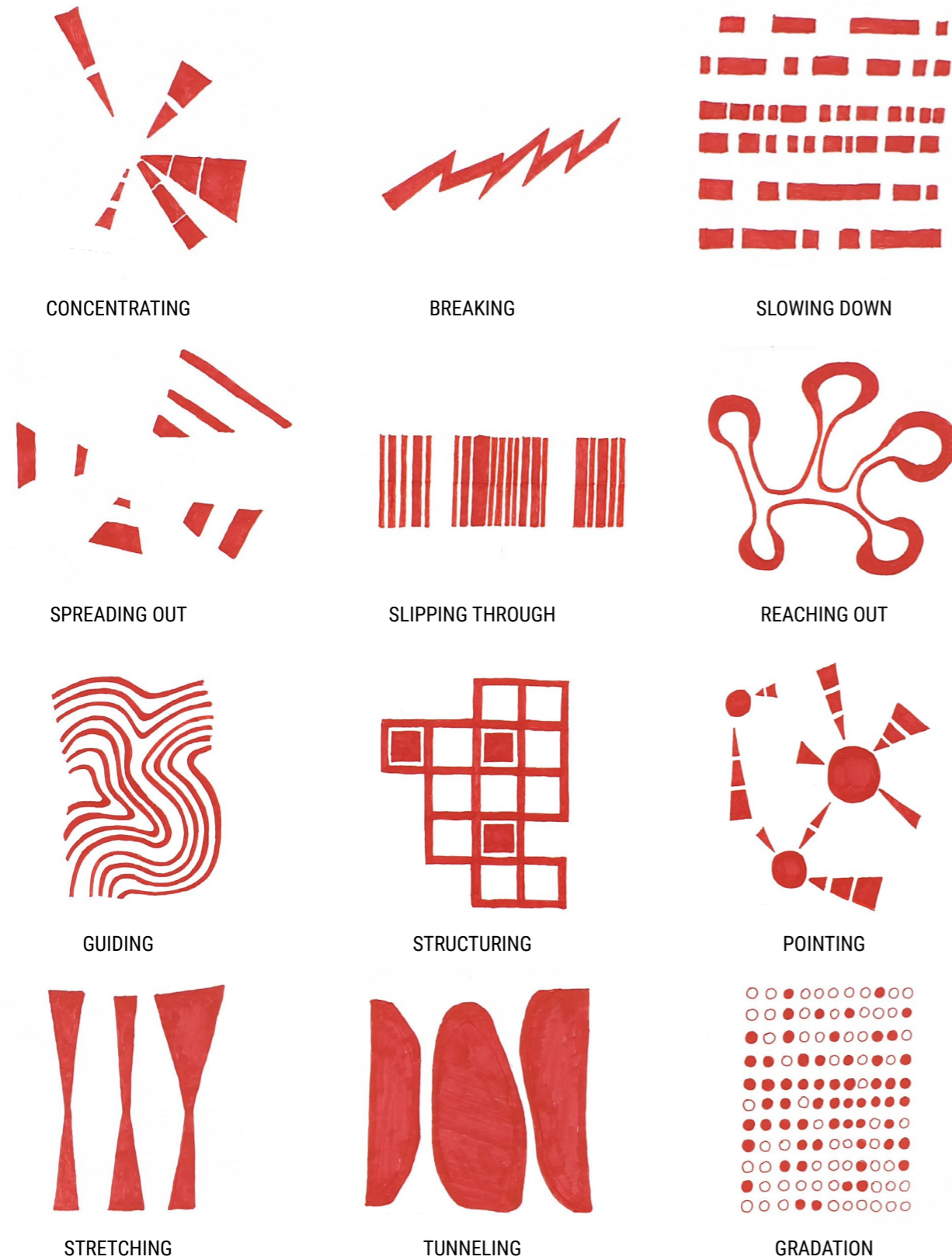


SPATIAL EFFECTS GRAPHICS

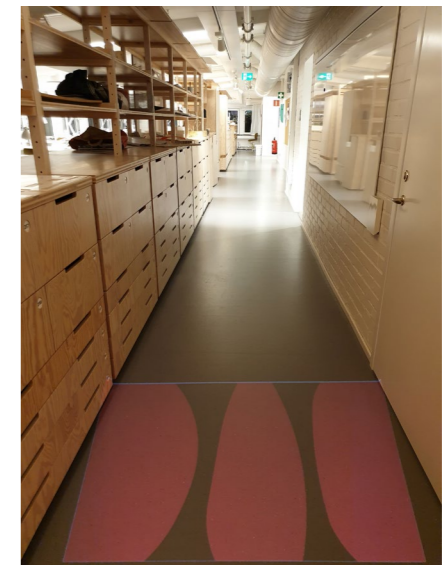
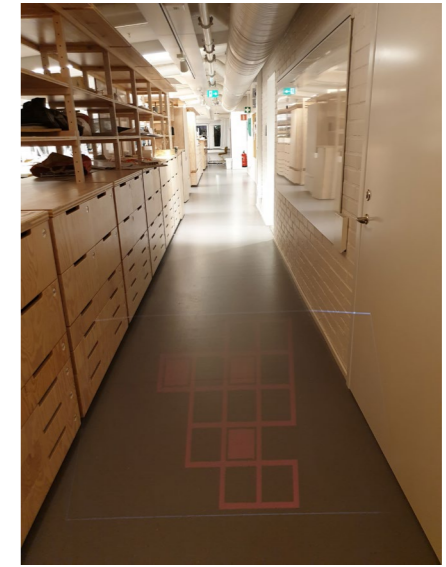
The graphics shown here are supposed to reflect some of the universal spatial effects that are present in architecture. The choice is subjective and the forms are not supposed to refer to actual objects, but rather their effects on space. The intention for them is to convey same or similar influence as physical objects or structures, without actually being what they represent.

CONVERSION INTO 3D

The purpose of the drawings is to convert the previous 2D graphics into 3D forms. When asking other students about their interpretation, I learned that some of those forms appeared to have a different effect than the 2D version, for example 'slipping through' and 'guiding' seemed to be more of a barrier, as in not encouraging to pass through them. A conclusion could be that some of those forms become something totally different when converted to 3D, or that possibly a more effective way is to design directly with 3D in mind.



PROJECTIONS



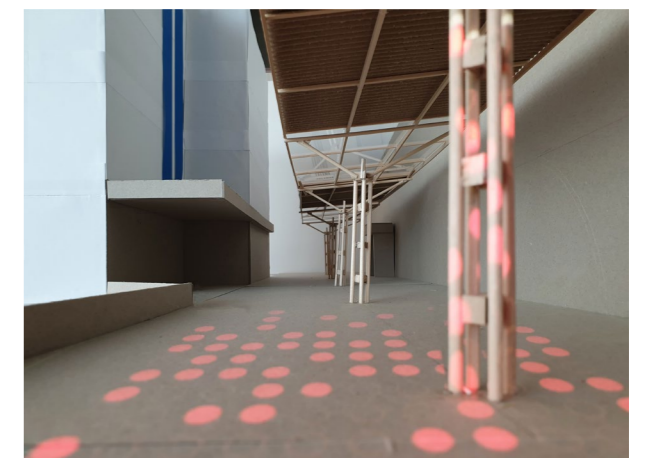
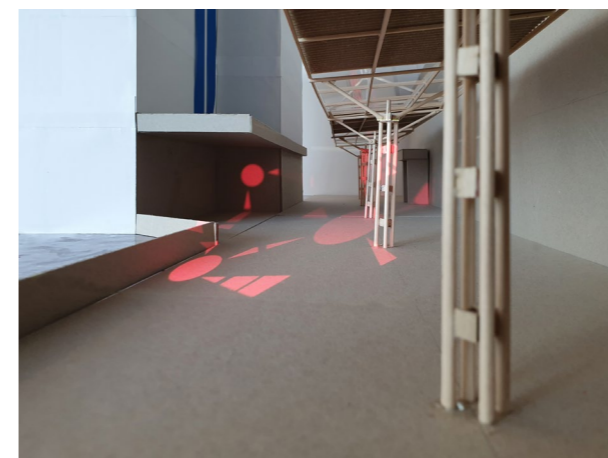
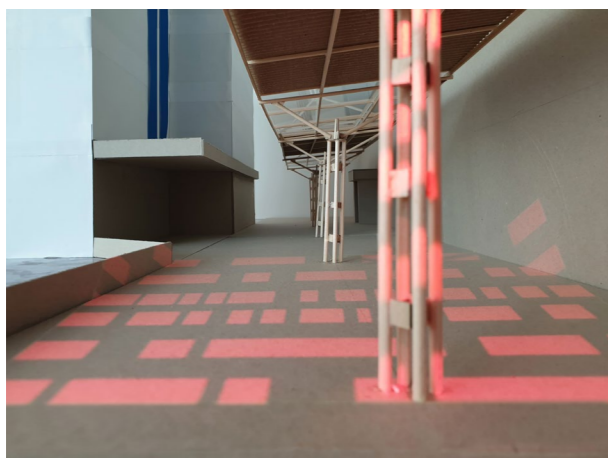
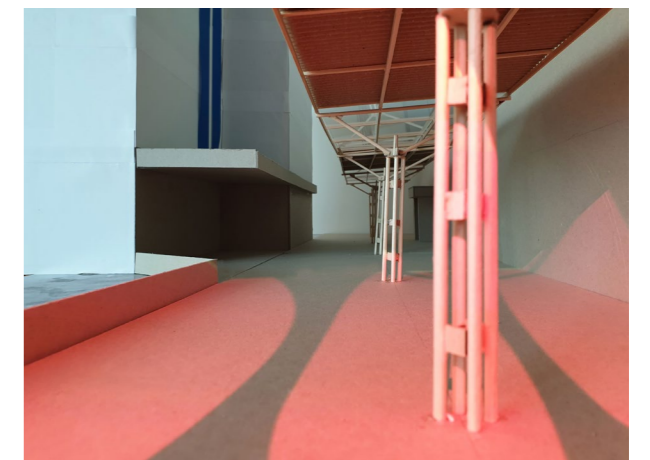
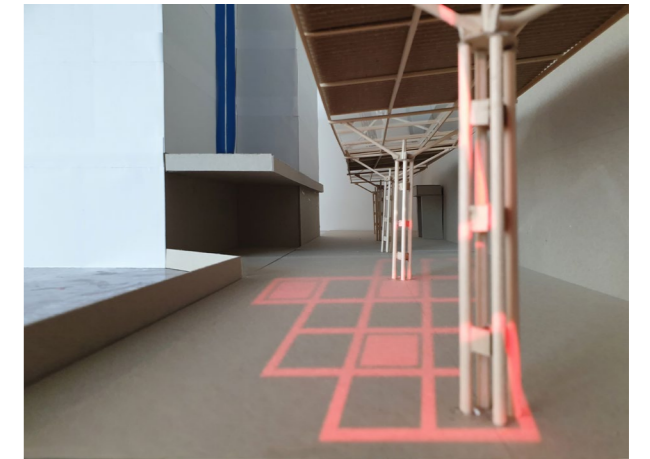
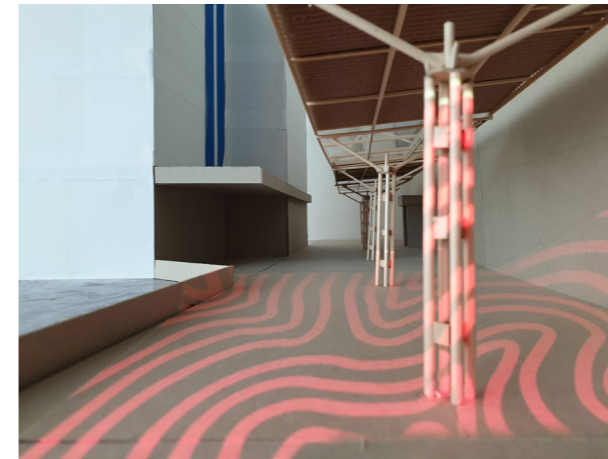
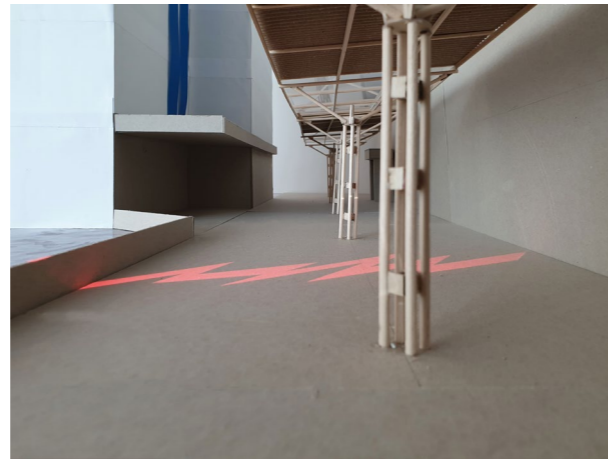
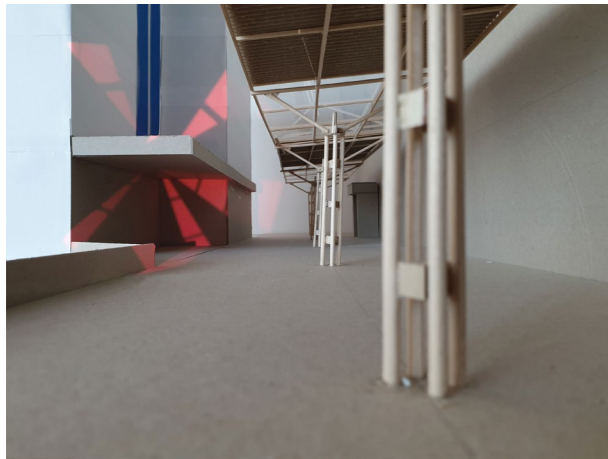
I tested the graphics in the context of a real space using a projector. The chosen space is a corridor, which has a resemblance to the passage with its proportions.

The main observation is the importance of scale, as some of the graphics, lacking a wider context, appear to be ornaments, not creating any spatial effect.



PROJECTIONS IN THE MODEL SPACE

Transferring the 2D drawings into model representation of the passage allowed me to see the effects in scales appropriate to observe how the interactions of various elements of space change when the graphics are superimposed on them. By using the projection technique, it can be compared how the graphics work when they are placed on a strictly 2D plane and when they also interact with the vertical surfaces. The result are consistent with the supergraphic method and could be used to plan out the physical placement.



MODEL TEST



Concentrating

The form is a close recreation of the 2D drawing, it uses archetypical triangular shapes to point to certain part of the space or object. The shapes could be spread out more, because of their oriented character and easily recognizable shape. Placing them higher up vertically makes it more dynamic and easier to interpret from a distance.



Breaking

The form creates a division in the space. Potentially could have a larger scale effect if extended both vertically and horizontally to the surroundings, however, it needs to be low enough not to be seen as a wall.



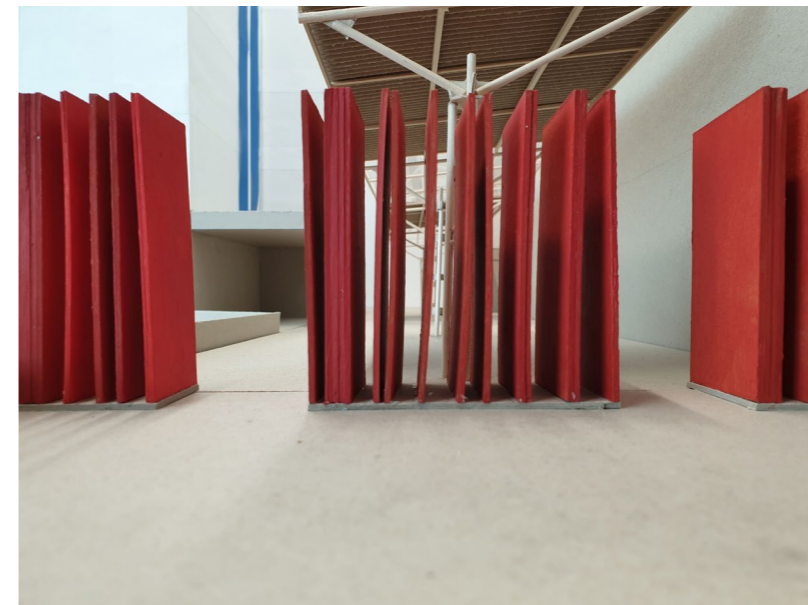
Slowing down

The extruded boxes prevent the user of the space from taking a straight path. Extending the form to the roof has an enhancing effect, as it makes it more noticeable, regardless if looking up or down while walking.



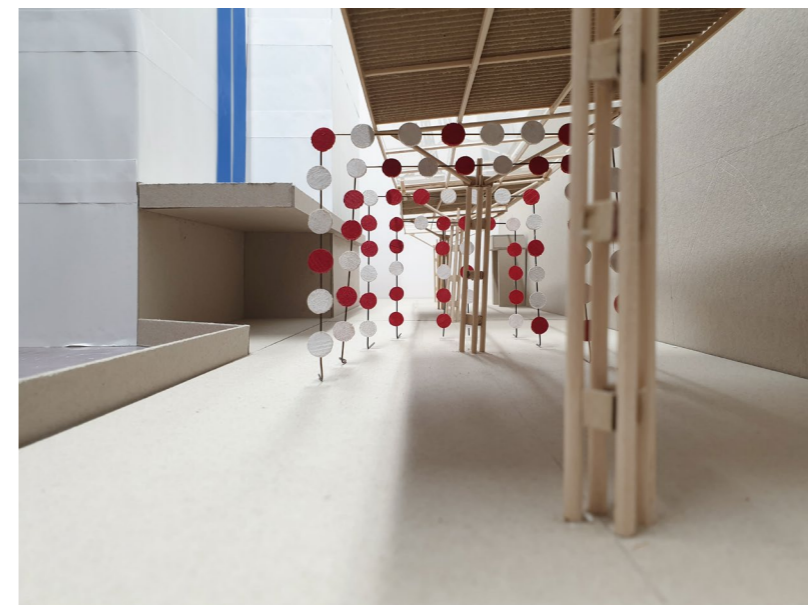
Spreading out

The form is similar to 'concentrating', but different placement and more horizontal shapes make the effect different. However, both of them have the effect of highlighting the central object.



Slipping through

When up close, it is see-through and creates specific entrance points. Depending on the distance and the position of the observer, it might be seen as a solid shape.



Gradation

Red circles concentrate towards the end, highlighting it as special in the space. The form would provide different experience while going through it and when observing from the distance.



Tunneling

The form creates specific ways that encourage to pass through them. Organic shapes heavily contrast with the surroundings, possibly increasing the effect.



Stretching

With the contrasting color, the form is dominating the space and appears to extend.



Structuring

The introduced grid both follows and contradicts the existing one. When observing the form, it could be seen as incorporating the pillars of the passage.



Guiding

To counter the previously observed effect of the form being seen as a barrier, I decided to shape it out of vertical elements. However, they are not easily perceived as following specific paths, which implies that the form works best in 2D.



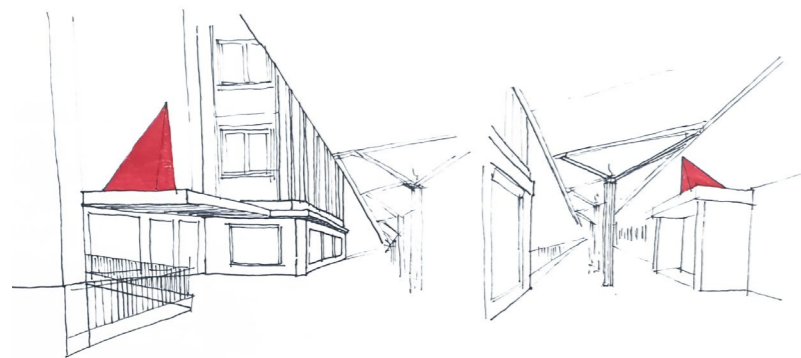
Pointing

A mix of sharp edge and round shapes provides contrast and makes the highlighted points in space stand out more.

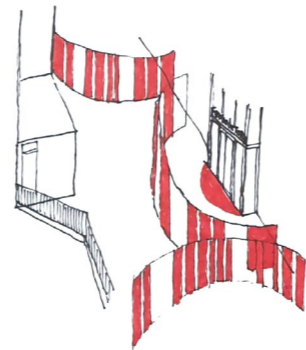
Reaching out

Based on experience with 'guiding', I decided not to model this form, as it has clearly a 2D nature.

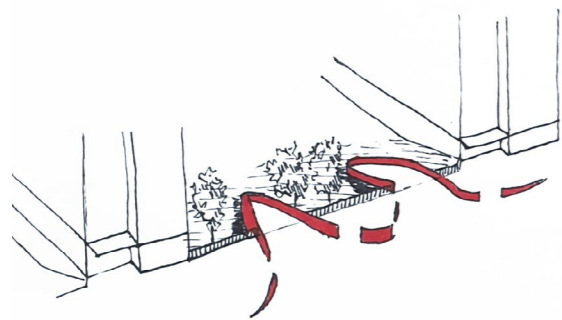
FORMS BASED ON PURPOSE



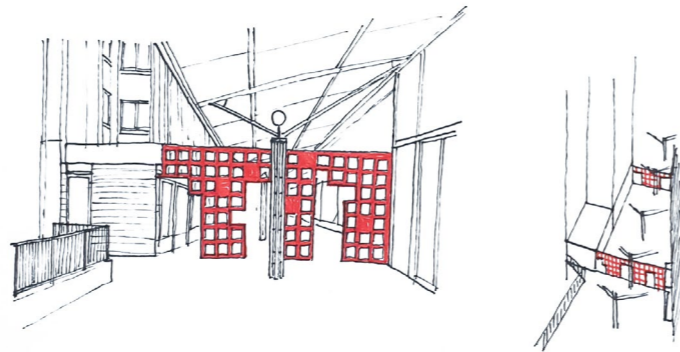
VISUAL MARKER



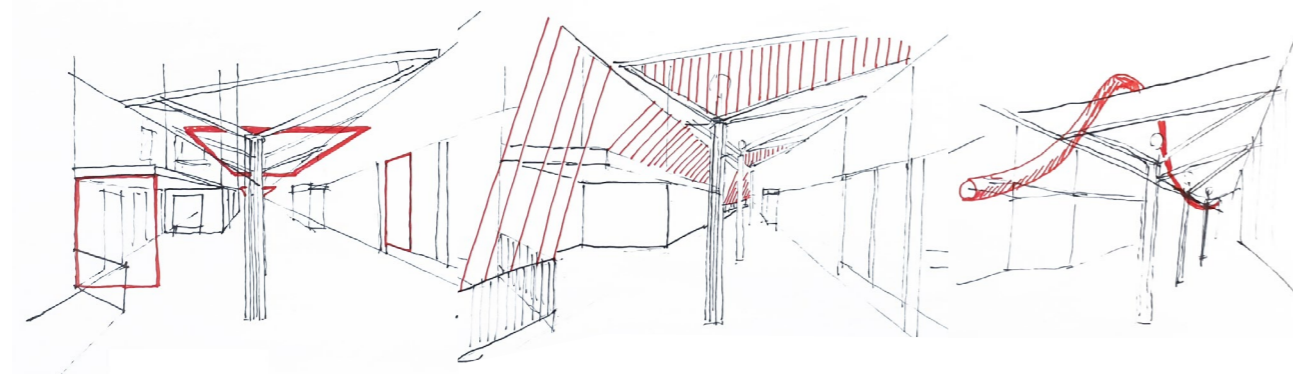
REDIRECTING



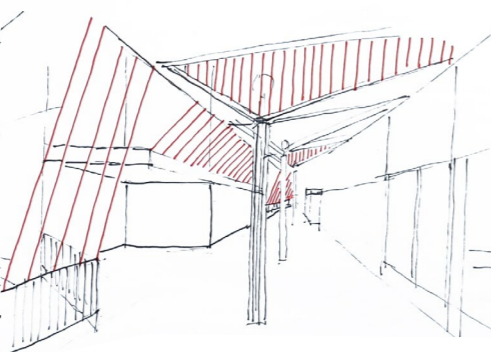
EXTENDING



DIVIDING



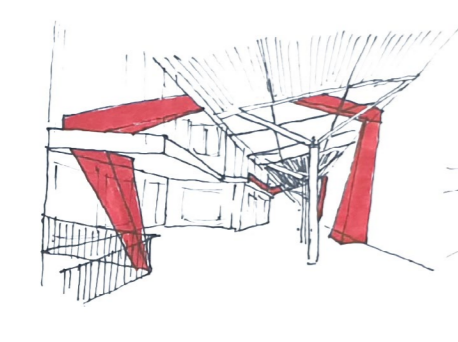
HIGHLIGHTING



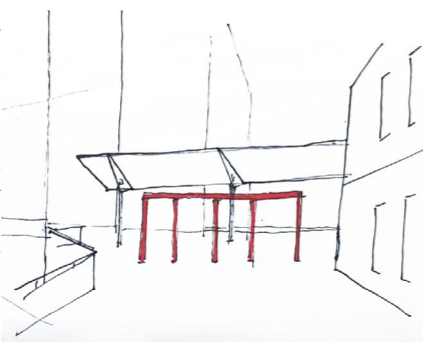
CLOSING GAPS



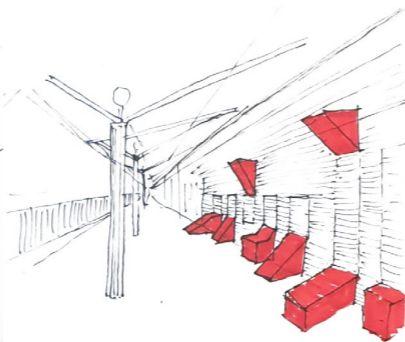
MEANDERING



FRAMING



GATE

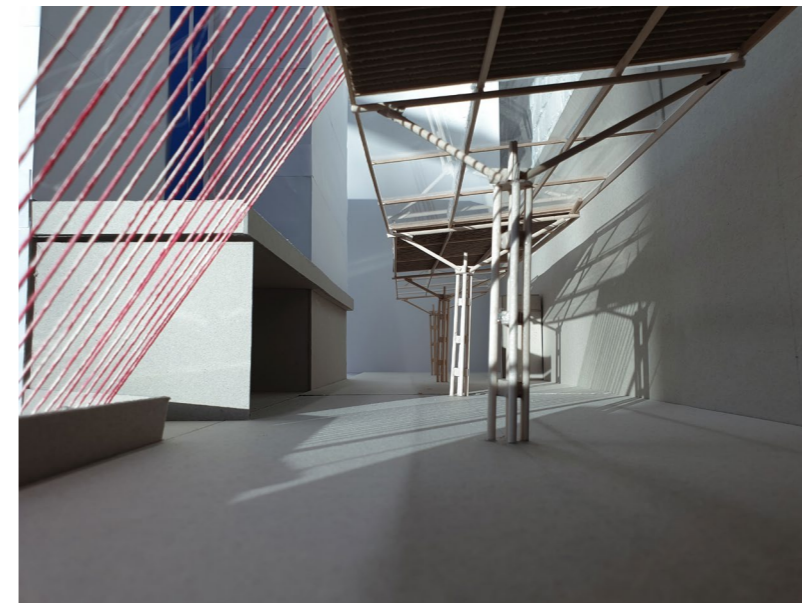


OPPOSING THE EMPTY



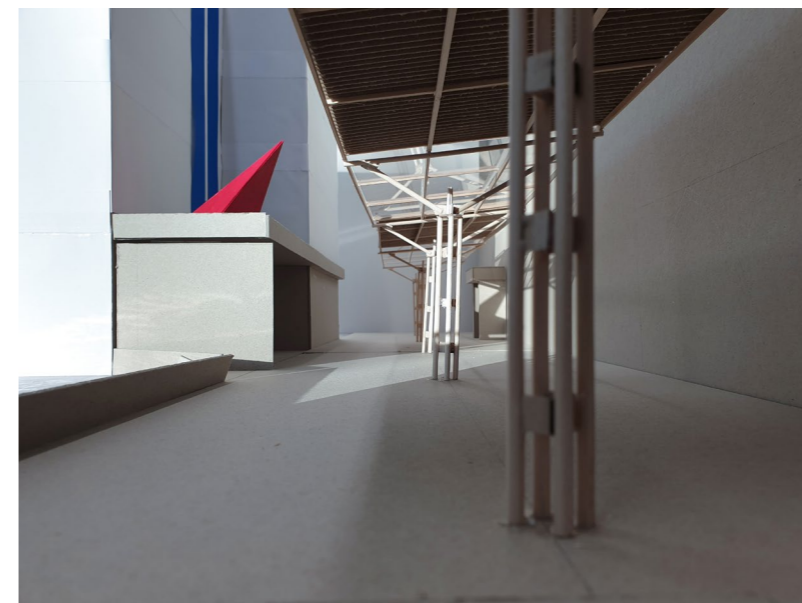
The forms presented here reflect a way of organizing or changing the way the space is used. They represent ways to direct or suggest to the users to experience it in a certain way, either visually or physically.

An image of empty model is shown as a reference point, to compare the effects.



Closing gaps

The form made out of thin elements, like wires or rods, is placed at the edges of the passage, which open up to the surroundings. It visually changes the proportions, by closing off the side, while allowing for sunlight to reach and not fully obstructing the view. With the distance, it would be seen as a barrier, but close to the observer, it would still be possible to look out.



Visual marker

A simple and striking shape highlights a part of the space as special. Sharp contrast to the surroundings, as well as minimal, easily memorized form could be more effective than more elaborate designs, thanks to strong difference from the rest of the space. The shape is clearly visible in the surroundings through contrasting and dynamic shape.



Dividing

A straightforward way of dividing the space into smaller segments. With big enough openings and only a small part being solid, it does not create an impression of an impassable barrier, as it is see through.



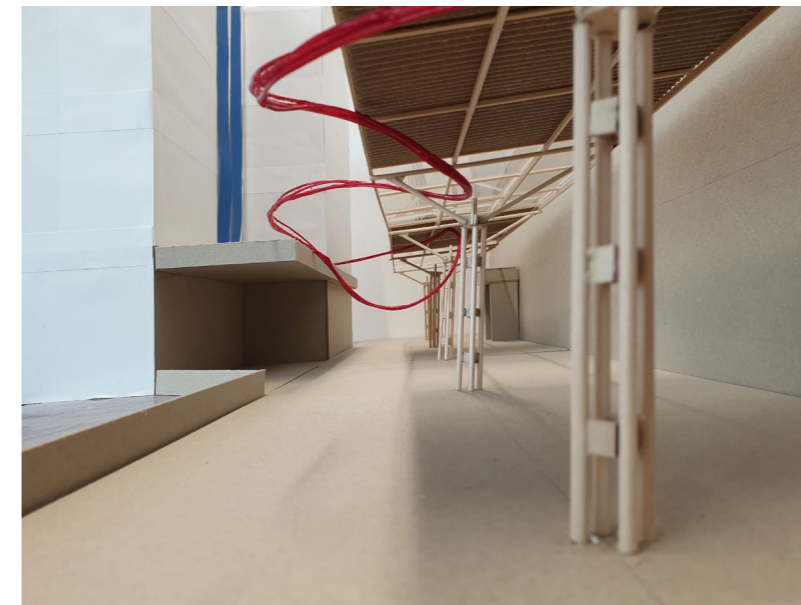
Highlighting

Because of perspective, in the distance it will be seen more as a line, so it is probably more effective when the observer is already within this space. However, this can be countered by changing the angle, so that the square outline is clearly visible.



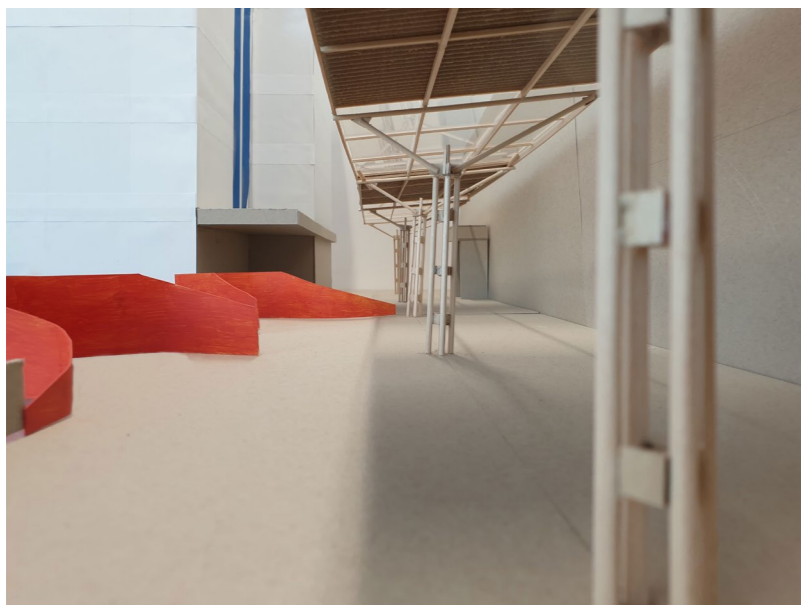
Framing

A way to create visual borders for a specific section of the passage without creating any barriers. An observation I got from the model is that it also creates illusion of the space being taller.



Meandering

A line going through the whole length of the space, but forming an organic path instead of a straight line. This contrast makes it more significant against the background of the roof. It can reach out to certain parts of the space to highlight them and serve as a guiding tool.



Extending

A form that reaches out of the passage with ribbon shaped 'balconies'. It is a literal extension of space beyond its borders, but seen from certain points, it would seem like it stands within the passage. Moreover, it creates small pockets, that can be used as less public than the rest of the space.



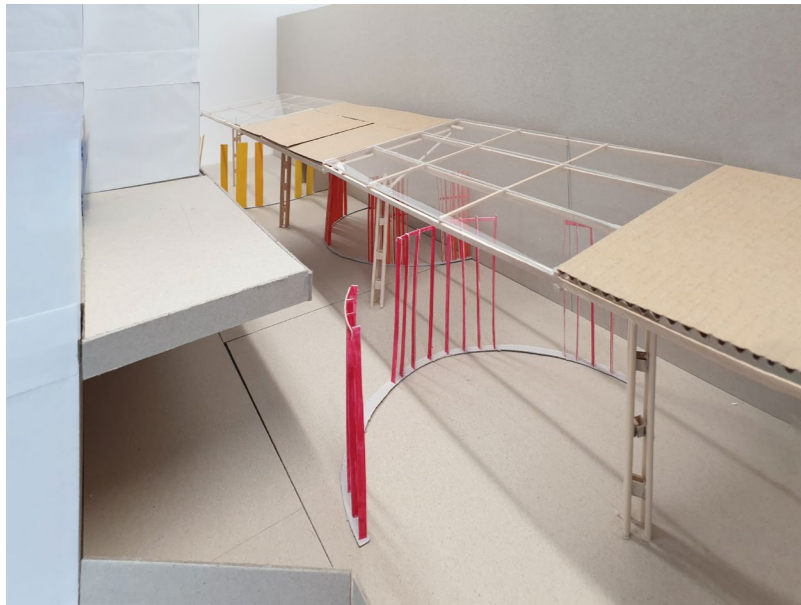
Gate

A gate or threshold to a different part of the space. It relies on association, as it does not form a physical barrier, it is possible to walk around it. The form can be stereotypically associated with an entrance, which might work as a division, as well as to encourage to walk through.



Redirecting

A form placed in important points, such as near the entrance to the building, that is supposed to redirect the movement. While clearly visible from top, at eye level it does not seem clear. Possibly the shape would be easier to see if the lines forming it were horizontal instead of vertical.



Opposing the empty

The form is supposed to highlight 'the empty' and conceptually 'fills out' what is not there, for example bricked up windows in the passage. It would gain by repetition throughout the space.



SPACE MANIPULATION BASED ON COLOR



The forms presented here are based on interactions of colors, where they are supposed to optically shorten or lengthen distances, highlight certain part of the space or affect perception. Example of the methods include how some colors appear closer against the background of other color, using the way colors are associated with certain emotions or their intensity.



Aerial perspective causes the objects in the distance to appear more blue or having colder color. A way to counteract this effect is to use a color that is as far to blue as possible. As seen on the first photo, the yellow square outline seems to be much more noticeable than the blue one below, despite being smaller.





Interestingly, the black square is also more visible than the blue.



The relationship of 'protruding' and 'receding' colors is clear: red and yellow take more attention than blue and black, even though the objects are placed further away. Also, in this case, it is worth to notice possible overcrowding of the space.



Some colors, like red and blue, have a property, where they appear closer, when placed against the background of other color. This can be used to optically shorten the distance. The colored objects can be placed further away from each other and still retain this property, also it can be specifically shaped to be visible only in a specific spot, thanks to perspective.



Protruding colors such as yellow, appear stronger against darker background, including shadows, which might be useful to highlight parts of the space, that do not get enough sunlight. This way of accentuating can also make use of the associations with the colors, for example red or yellow are supposed to catch more attention than others.



SPACE MANIPULATION BASED ON PERSPECTIVE



The forms presented here attempt to manipulate perspective to give impression of shortened or lengthened distance.



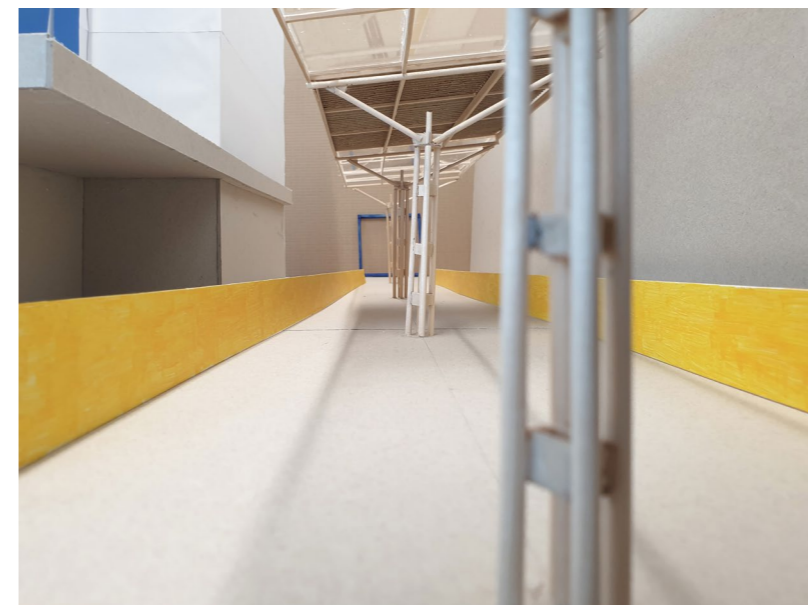
Horizontal stripes that are wider the further they are from the viewer. They counter the effect of objects in the distance appearing smaller.



The effect can be combined with other methods, such as countering the aerial perspective.



Forced perspective can work in both ways, depending on the placement of the elements. When the distance between the yellow lines get wider at the end, they optically shorten the distance. When it is the opposite, it appears to be extended. The effect is enhanced with lower or shorter height at the ends.



Test to combine forced perspective with use of blue to appear more distant.



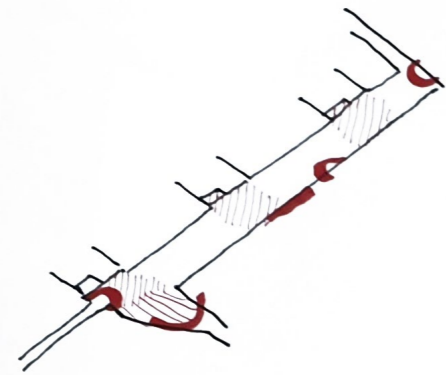
Using the same method of lines getting wider the further they are, the elements added on top, that also get wider, can enhance the effect. The method can be combined with others to possibly strengthen the effect.



Manipulating the third vanishing point of vertical objects. Depending on whether the added elements get wider or narrower with height, they can appear shorter or taller. However, this method might be more effective when applied with larger scale, as to work it likely requires looking up.

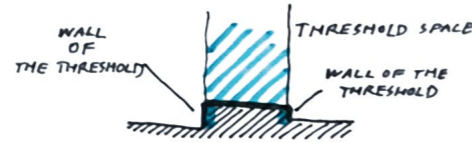


APPLICATION IN THE SPACE OF THE PASSAGE

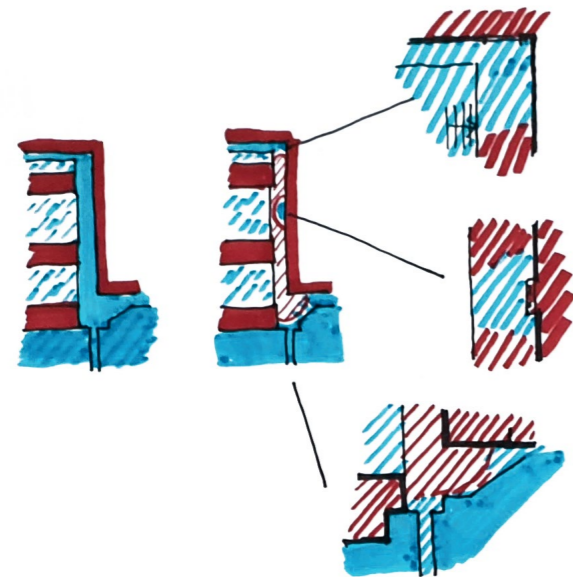


Influence of specific elements of space

Some objects in the passage have an influence on how the space is perceived and used. Those are main entrances, entry points and 3D objects, such as the towers. When shown this way, it is clear how the structure of it consists of specific points and the rest.

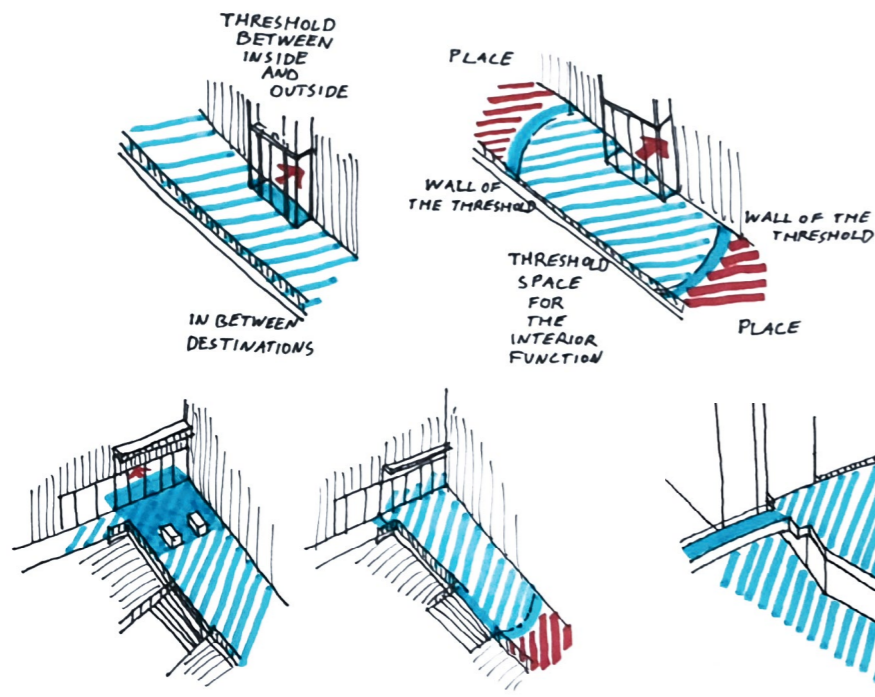


The doorstep itself could be divided into several stages. It has a beginning and the end and what is between them.



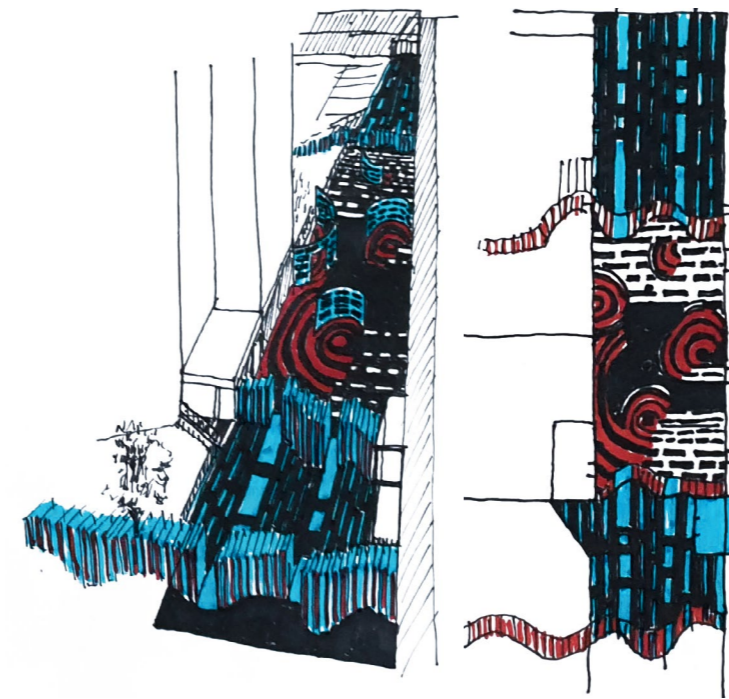
Within the theory of liminality, the passage could be divided into a set of experiences. The zones of most influence, which I believe to be main entrances to the mall, should have their own doorstep, that would separate the liminal experience that happens before entering the inside. By shifting the liminal experience from the whole passage to a specific, smaller part, the rest of the space might become something of its own.

Red- specific space
Blue- in-between

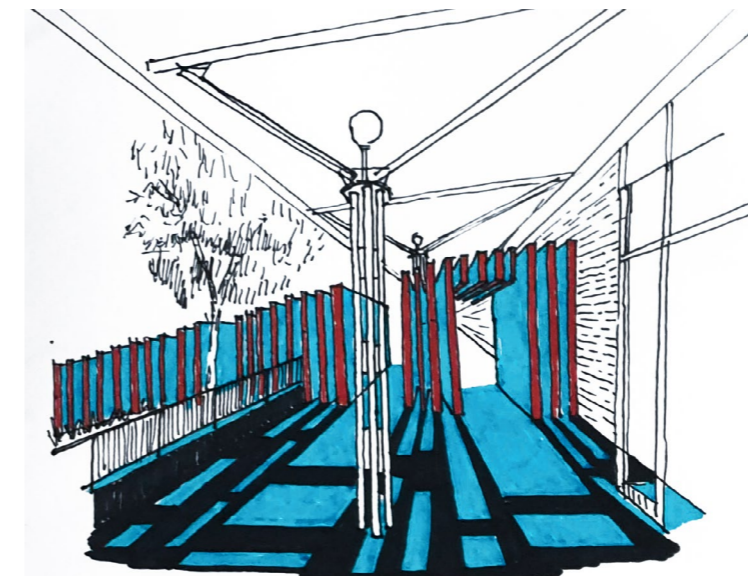


How the 'place' and 'in-between' distinction could be split in special zones of the passage. Providing each of them with a specific 'doorstep' could shift the role of the passage from a leftover space that leads to more specific places to a place of it's own.

Red- place
Blue stripes- in-between
Blue- border of the threshold



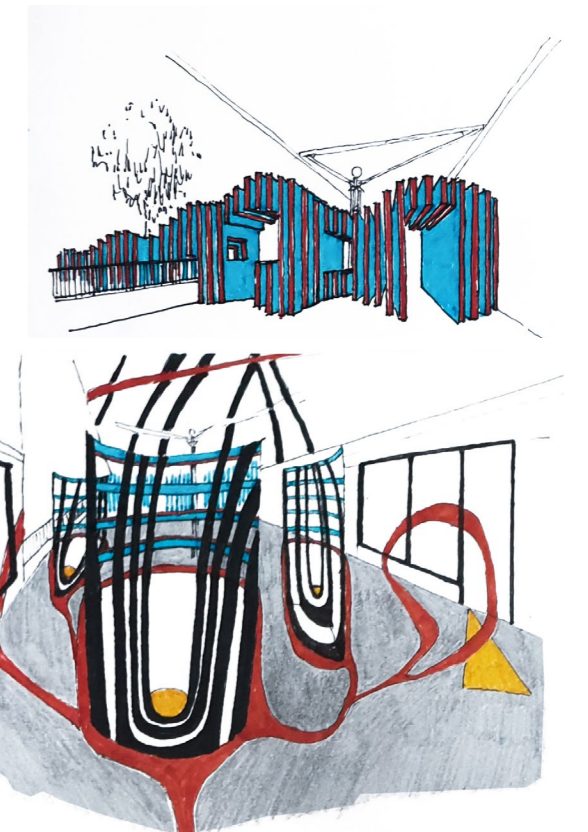
The in-between spaces serve both the 'special' part of the passage as well as the entrances. They function as transitional points between the outside, interior and the 'special' part of the passage. Applying the way a doorstep is built, I gave the in between zones a border, that is both separating and connecting to the rest of the space.



I took a decision to further develop the part of the passage between the main entrances to the mall, specifically starting at the edges of the in-between zones. Previously discussed forms were placed in a context where they were the sole 'different' object within the space, which naturally provided them with significance within the passage. However, when placed within a continuous experience, created with objects of similar nature, they might lose what made them stand out. At this stage I looked into this aspect, using previously researched methods.

Within the space, the 2D graphics are supposed to interact with 3D objects, which role is to create certain divisions and provide a variety of more secluded or private spaces. Analogically to van Eyck's playgrounds, important role is played by the spaces between them, where nothing is happening, but which allow a different perspective of interaction.

I am also looking into the aspect of dissolution of space with graphical elements. The intention is to expand it, shift spatial boundaries, create connections, views and new organization.



CURRENT SITUATION



North facade



East facade

The architecture is regular and monotonous, largely identical throughout the passage, with limited choice of materials and articulation. The facades are flat in terms of tectonics, but have some variety added through materials. Apart from the lamp posts, the surface area is empty, covered with asphalt, which creates effectively a blank state for possible intervention.



Plan

0 1m



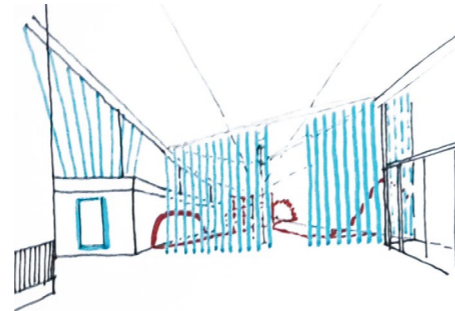
South facade

0 1m

WORK PROCESS



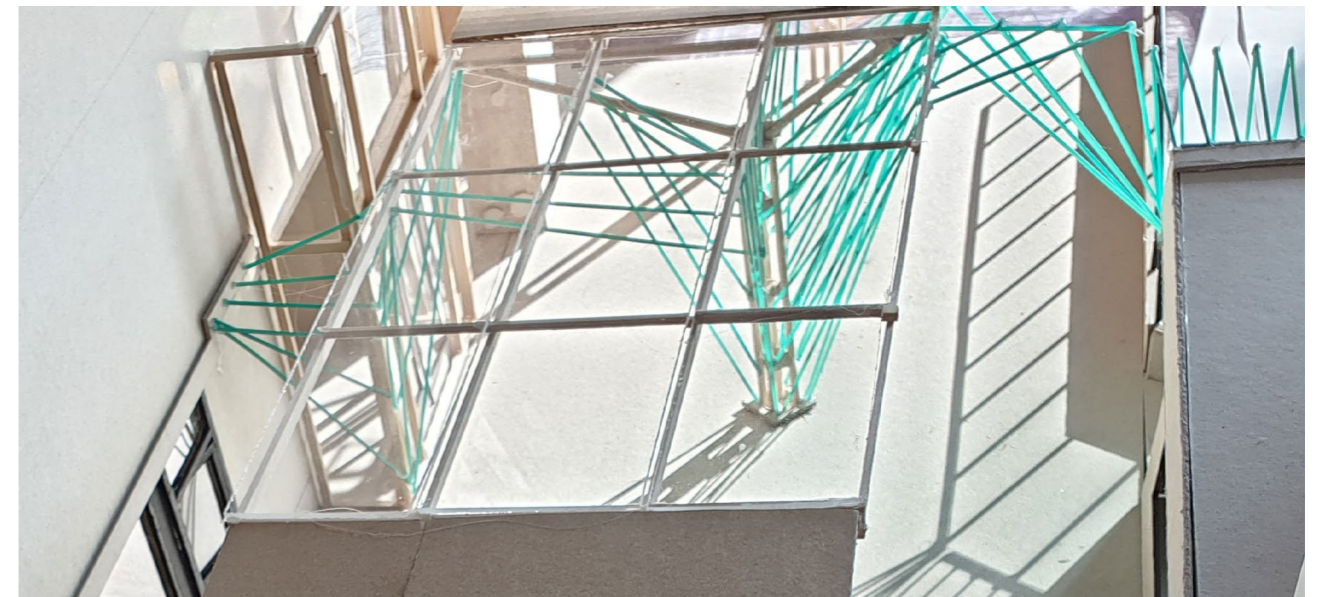
I began with reconstructing the work model. New details such as windows and doors allowed to use them as reference points for later work.



At the start of the design process I looked into the edges of the space. The 'entrances' form the border of the doorstep. They are strikingly different from the rest, signifying a break from previous reality. They frame the views and provide a clear but passable border.

As they are objects that border and reach out to the outer limits, I decided to assign cold colors to them, while keeping warm colors for the inside. Referencing the existing blue stripes on the tower, the new objects are also in shades of blue.

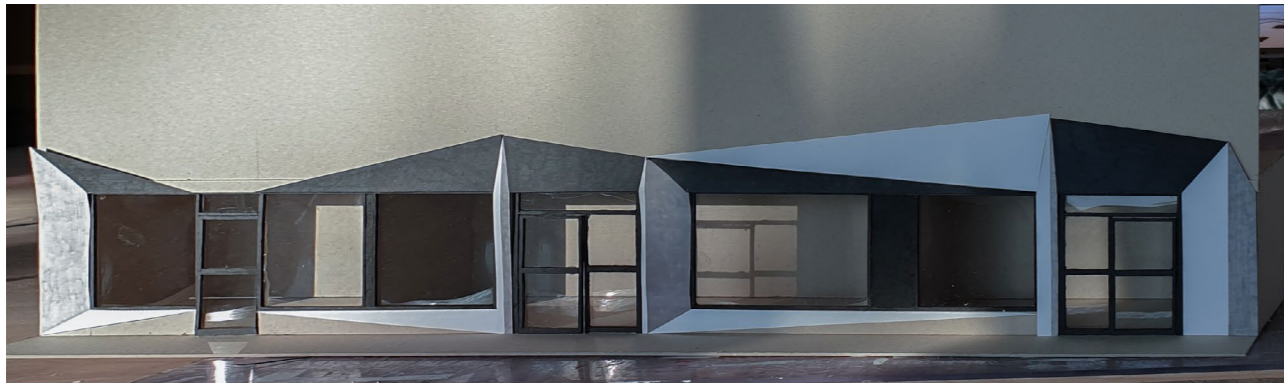
The entrance from the eastern side is made out of thin rods, that are attached to existing structural elements, such as pillars, railing and roof. Their purpose is to dissolve them into a structure that envelops the area. The thin elements allow to see through them at the right distance, not blocking the view.



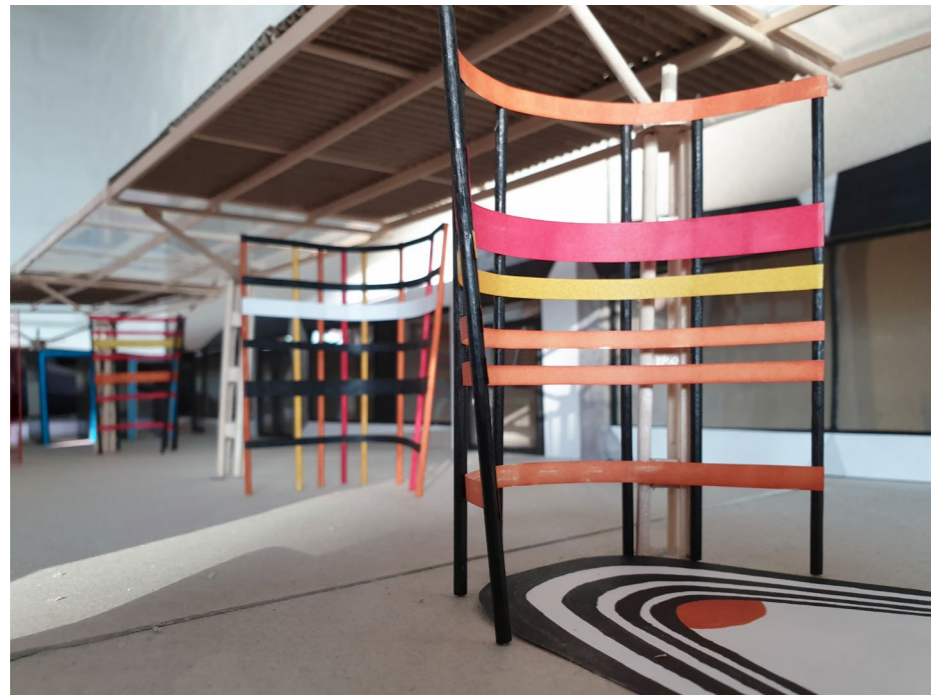
The play of shadows continued from the thin elements forming the doorstep gave me inspiration for later additions.



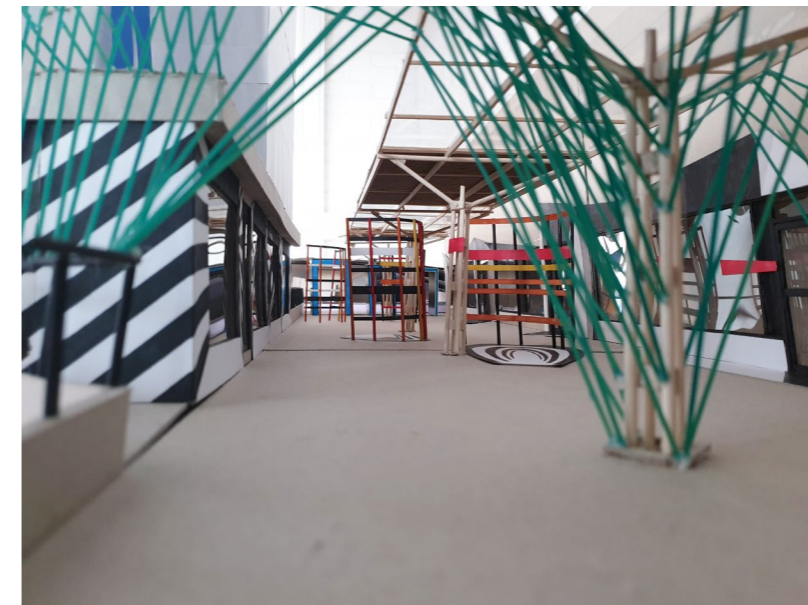
On the other side, I went with the form of a gateway. The simple and recognizable shape communicates that there is something behind and provides contrast with the surrounding, it is a clear border, but not a barrier, as it possible to both pass through them, as well as between them. The regular shapes allow to frame views from the outside.



In the next stage, I looked into the walls of the buildings bordering the passage. Using the method of optical illusion, I broke down the flatness of the walls to achieve a more three-dimensional appearance, that from certain points would visually extend the space. The visual language references op-art.



Afterwards, I looked into the semicircles that I planned within the space. I used a form of stripes enveloped over poles, with the rule of having either of which in neutral or warm color at the time. Their practical purpose is to create some divisions in space, as well as provide a slightly more secluded area.



The interventions occupy a relatively small part of the space, especially when only considering the 3D ones, but seen from human perspective, they have much bigger 'visual mass' than anything else there and seen from the distance, they have different effect than up close.



At this point, the effect of dissolving space can already be observed, as the borders of existing architecture and graphical additions become unclear.



Next in order I looked into the horizontal surfaces. As I mentioned before, I was inspired by the shadows present in the other part of my work. I decided to shape the lines on the pavement so that they extend the vertical part of the semicircles and add more of the horizontal stripes. This way, it creates an illusion of the structural elements extending into space. In addition, the lines create connections to different points, as well as create unexpected visual connections, where in certain points they create an interesting visual, different each time.



Next addition involved another semicircle in the middle of the space. To give it more significance and highlight its central position, it uses slightly different graphics.

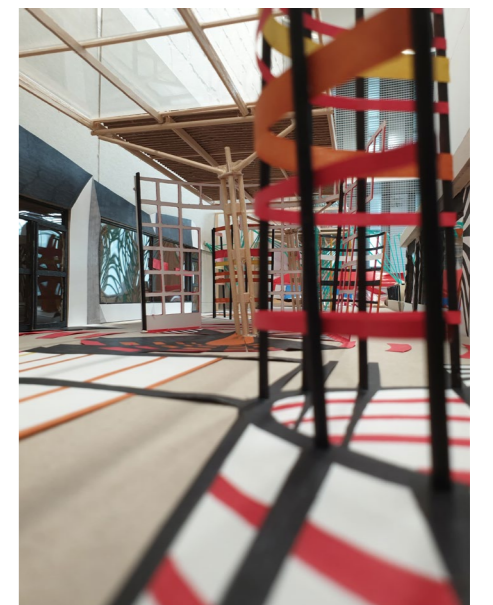
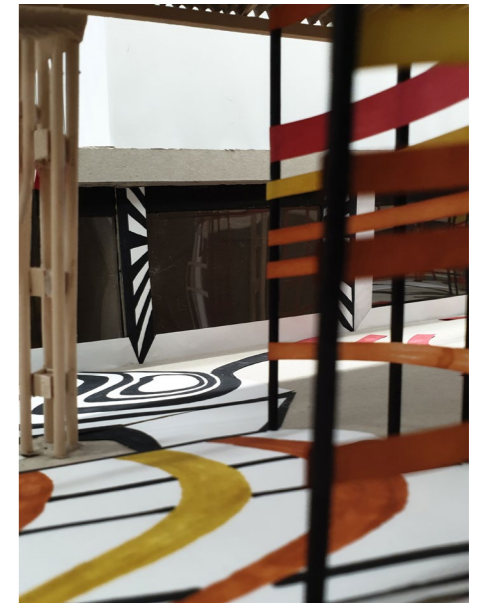


I was also considering adding an element, that would reach out to the outside in the vertical plane, but I decided it had an overwhelming effect on the rest of the space. Here, compared to the earlier experiment with this form, it seems to be very heavy and pressing the space down instead of having any expanding effect.

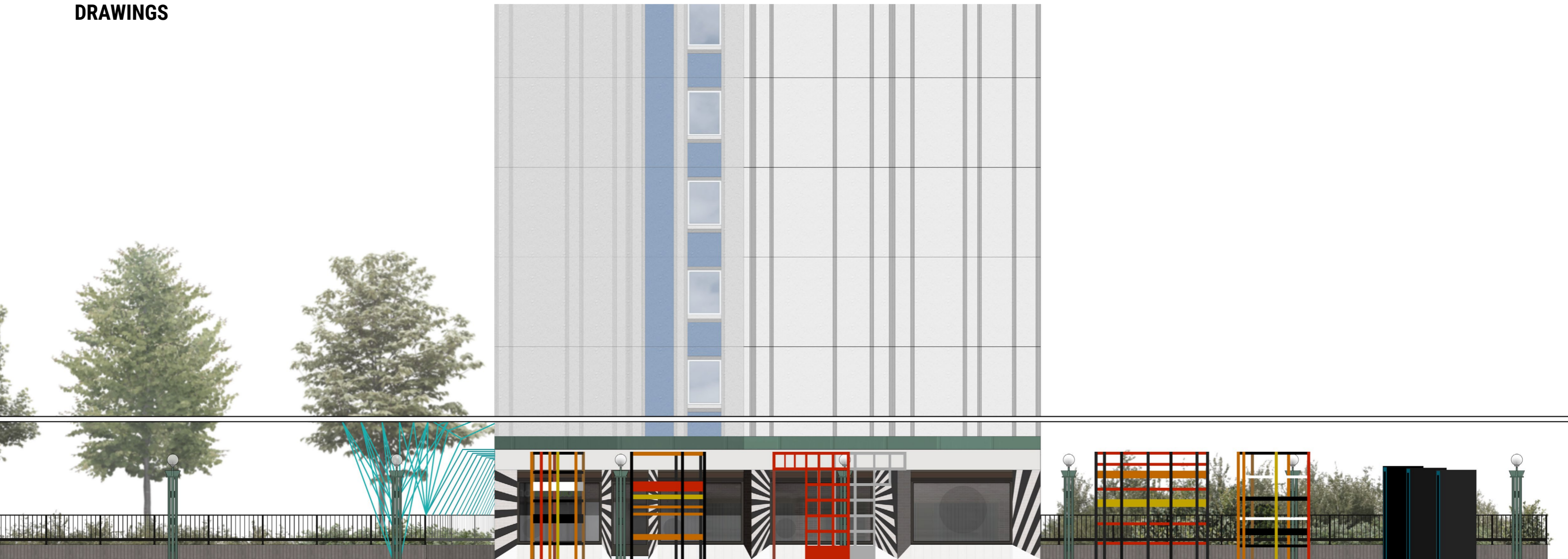
FINAL RESULT



I decided the end of the process when a subjective level of visual saturation was achieved, as in the point when no more additions would bring anything new. Right before the end, the work involved removal of some elements and looking at everything as a part of a wider composition. To sum up the process, it involved constant alteration of additions to see how they look in their place or as a part of the larger space, while following the general initial idea. The whole work process was rather intuitive instead of pre-planned.



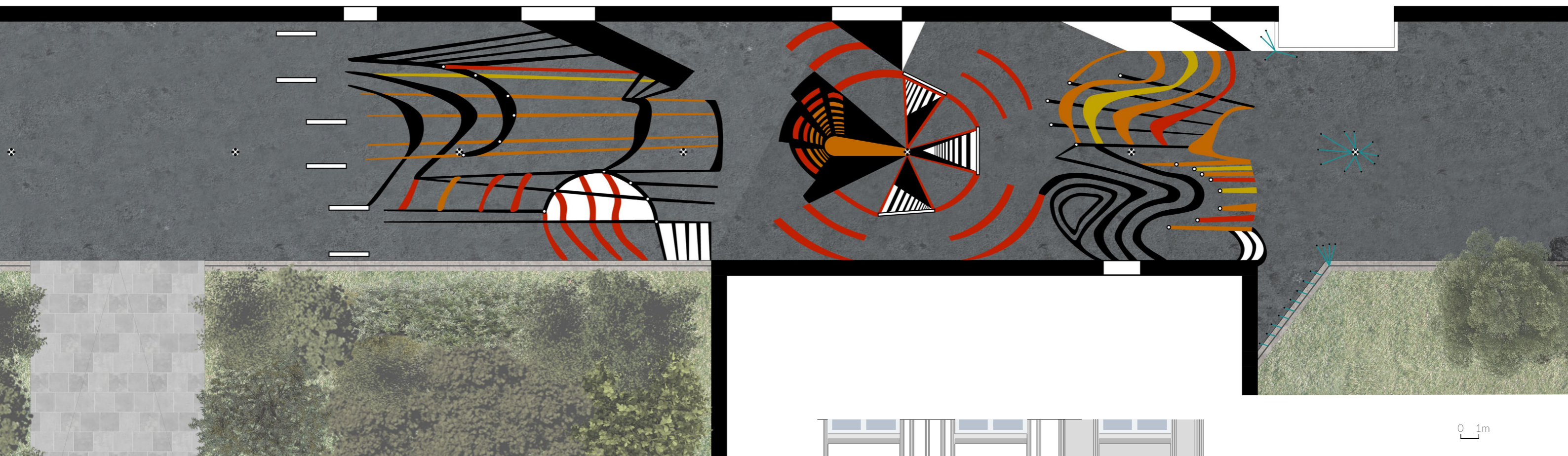
DRAWINGS



North facade



South facade



Plan



DISCUSSION

Thesis questions

How to affect behaviour of the users of public space to change its' use from transitional to a place to stay?

The forms I presented have the purpose of affecting the user's perception of the site, to change it away from an in-between space, into a space with own identity, not shaped only by being betwixt the surrounding places that have a stronger influence on the area. Some effects of the methods include changing the perception of proportions, distance, borders, importance, as well as shifting the attention into specific parts of the space, creating connections or separations. In general, they add spatial relations and complexity that is lacking in the site.

How can the spatial effects of architecture be translated into a graphic-based form?

I presented a visual toolbox of different forms and methods, both 2D and 3D, that have the purpose of affecting the user in a way physical architecture could, without changing the base architecture of the site. While having a simplified, abstract nature, the forms evoke spatial relationships that stem from larger scale design, by being limited to their essence.

To elaborate further, certain aspects of the problems presented in the questions are discussed further in the following paragraphs.

The role of the passage

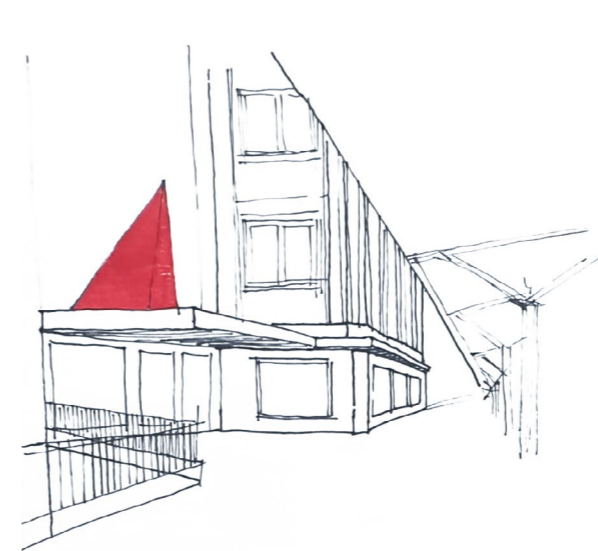
While I started with a specific focus on the passage as a unique space, during the process, it became more of a tool to develop the method rather than the main focus. Because of its characteristics, it provided a useful example of a space lacking something, that would encourage people to stay. As there are so many factors, that can cause it, it is not possible to explain this with absolute certainty.



Image 18 Importance of location

As pointed out in the analysis, there are certain components that make the space seen as it is. We can assume that the methods presented in the work can be applied in other spaces that share similar characteristics, with comparable effects.

As some authors speculated, there are some universal rules of what causes a space to be used the way it is used, however in my opinion there can never be an absolute certainty. A good example of this is a square at the central metro station in Warsaw. With its lack of detail, connection to public transport and sunk in placement, we can draw parallels with the tram station at Frölunda. Despite this, it is still much more busy than the square in Frölunda, as well as theoretically more attractive parts of the center of Warsaw. In my opinion, a very specific placement, where the entrances to the metro, as well as underground pedestrian routes cross, combined with being cut off from the surroundings, counteract the negative features, by 'forcing' some level of activity. In a way, this is contrary to all the rules or concepts of good design, and highlights that all the factors cannot be easily predicted and that some, such as the right location, have enough importance to override anything else.

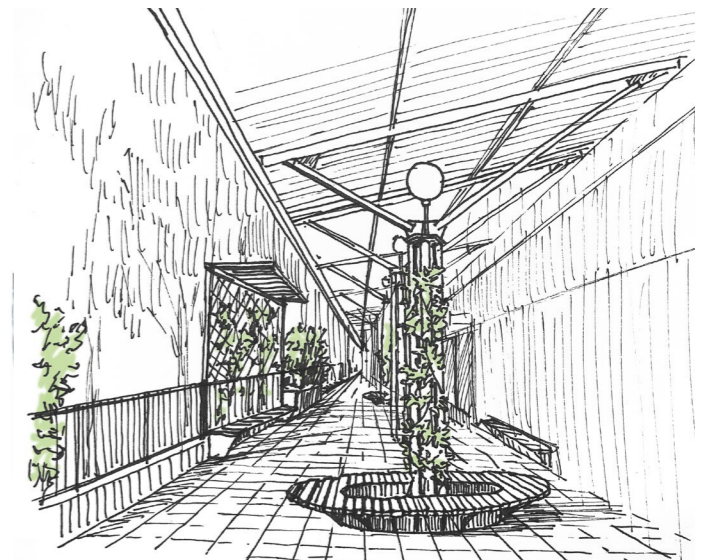


Which one is the rational approach?

Rationality

An interesting question is whether objective criteria of rationality in improving public space exist. As mentioned earlier, some authors, like Jan Gehl, attempted to describe them or factors that cause success or lack of it. From a conventional point of view, a way to improve the passage would be to increase its attractiveness and functionality for the public. Such intervention could be adding seatings, more greenery or other features. Basically, directly providing a reason and way to stay. While a seemingly reasonable and tested approach, it solves only the problems that are easy to name and observe, in a way it is a symptomatic treatment. Obviously, if there is no space to sit, it will prevent most people from spending time there. Same thing applies for sunlight, if there is not enough available or on the contrary, there is no space to hide in the shadow, it directly affects the comfort and can determine the decision. But none of this answers the question what motivates someone to stay in a public space. Assuming there is a place to sit, what does make someone take the decision to take a seat?

On the other hand, there is the notion of hostile architecture, where some groups are passively discouraged from using a certain space. Methods such as uncomfortable benches or spikes are employed to prevent sleeping in public for example. That approach is fully intentional, but what about unintentional hostility? A badly designed or neglected space can have a similar deterring effect. If a public space is



disused, could the reverse thinking be applied to counter it, as in creating the opposite of the characteristics that act as discouragement?

Possibly the problem could even be solved non-architecturally simply by encouraging opening of businesses that attract people to stay, such as cafes or restaurants, instead of ones, which are only visited with a specific purpose in mind, like a lawyer, hairdresser or funeral home. Nevertheless, this relationship works both ways, as in the type of companies that operate there are a sign that the space is unattractive. If there was more traffic, it could naturally make it more appealing to invest.

Usefulness

A topic that came up during one of the critiques was whether the work should include something that is directly useful to the public, such as the possibility of using some objects as seatings. I decided that for the sake of researching the effects of abstract forms on space, it would be against the concept to add a layer of usefulness, that by its nature would affect the forms, both in shape and 'purity'. Something that is an equivalent of a real 'useful' object breaks away from the abstract realm and acquires a criteria of rationality. In that case how would it be different from a standard, functional approach in urban design? With factors such as costs in mind would it be justified to attempt something that differs from standardized solutions? Would the form become nothing more than a decoration for its main function? Would it be judged more according to functionality?

I did not exclude the possibility that if any of the forms were realized, they could be used by the public to sit on them, stand under them or to employ them for any other purpose. However, the forms are not designed to be functional objects and any kind of activity would be a part of personal experience, where it is the user and not the designer deciding how it affects or motivates them. This way, the interventions can be seen as a background or even framework for public activity, leaving them open for interpretation.

To elaborate on the topic of usefulness, the idea of what is the right use of public space is subjective as well. Is it really possible to value space based on how people use it? What constitutes the 'right' use? Maybe not every space needs to be used in a specific way? Perhaps, those questions need to be left open ended.

The role of the human

Another question that was brought out was where are the people in the project. It can be seen that the images in the thesis do not include figures of people. Usually, in architectural renderings, they are used to provide a sense of scale and increase the liveliness of the scene. Effectively, they can be interpreted as serving same purpose as plants, furniture, vehicles or any other object that is supposed to make the image more believable or visually attractive. Also, any kind of still image can be used to manipulate the impression of the observer. For instance, it is possible to take a picture of a corridor, where it seems that a crowd is staying there, but in reality they are in movement, same can be done the opposite way, with right frame, any space can be made to look empty and devoid of life.

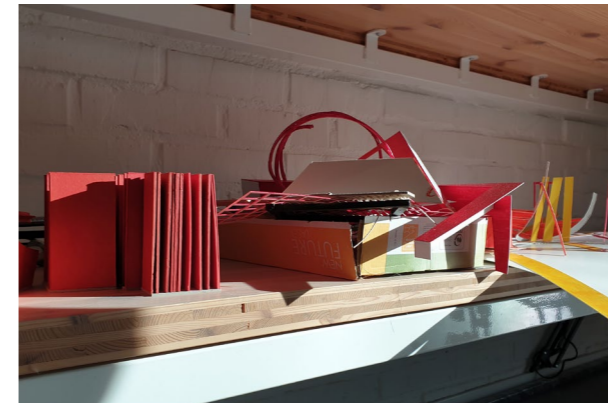
With this in mind, I decided not to include people in the images. It would be easy to create false impression of improvement, by adding figures of a crowd enjoying themselves surrounded by my installations, which is something I wanted to avoid and to bring some level of objectivity, even though the concept and subject matter is largely subjective. For example, the photos are taken from a perspective of the user of the space and they are given more or less the same composition, to make comparisons possible.

Nonetheless, nothing of this means that the role of the person is not taken into account. The most important reason for the way the material looks like, is that the whole project is about personal experience. It is each person's individual perception that shapes how the space is seen and experienced. Removal of certain aspects of reality helps to bring the explorations closer to an abstract, dematerialized space of feelings, impressions and subconsciousness.

Honesty

The whole idea of representing a spatial effect of a physical object without actually using it, potentially raises a question of honesty in architecture. Some of the references I used rely on the same principle. Supergraphics were trying to expand space with the use of 2D imagery, suggesting three-dimensionality where it does not exist. Op-art was suggesting movement or depth by affecting the sense of vision and was criticized specifically for that reason. The criticism was about visual trickery, with the implication that it makes the whole exploration less valuable. Trickery is implied to be dishonest, which can be easily associated with immoral. Essentially, my research can be interpreted as manipulating the experience of a user of the space. By suggesting something that is not there, it is supposed to affect how the place is seen, felt and used, without making any deep and long lasting changes to what it is.

The discussion about honesty in architecture led to many questions throughout history. Some, like Louis Kahn, thought that honesty comes from structure, that the tectonics and articulation should reflect the way the building is constructed. Same idea was applied to materials. In contrast, many movements or epochs, like baroque or postmodernism, heavily relied on scenographical or facade-centered thinking, with the notion that what is seen and experienced is more important than the way it is made, with structure being only secondary and often hidden. As obviously both design philosophies have merit, the judgement is highly individual. Another issue is the question of honesty in regard to technological development. With modern regulations, it is not possible to build completely true to structure and materials, as insulation or technical installations cover them up, so the external appearance is 'fake' regardless, as it is just cladding.



Physical part of the visual toolbox

The tools

Throughout the process I have used analog tools, with a notion that it allows more direct visualization of the thought process. In my opinion, this approach proved to work as intended and enhanced the individual nature of the thesis. Interestingly, building models encouraged me to try to simplify the forms, which possibly removes anything that is unnecessary to get an understanding of their effect. Projections proved to be an interesting method in the design process. It enables to create complex graphics developed from a simplified 'starter', which develops by moving the projector. This method also adds another layer. The graphic acquires its final shape by projecting it on the model, but the resulting projection also gets filtered through elements of the model, which produces unexpected results and creates a deeper relationship with the space.

Reconnecting with liminality

Use of the concept of liminality helps to indirectly identify phenomena that are hard or impossible to name otherwise. A lot of spatial relationships can only be observed through their effects, such as what motivates someone to stay in the space. Assuming that those kind of decisions are a conscious choice takes away a lot of the complexity and results in an overestimated role of the designer, who might think that they have to rationally convince the user of the space to experience it in a specific, preconceived way.

In my opinion, the most important, defining part of the decision to use a space in a certain way, exists only in the subconscious realm, affected by perception, experience and many other

factors. As my research attempts to touch upon what kind of spatial factors can trigger how a space is seen, it can be said that the whole work fits within this concept.

As mentioned before, the focus of the work is experience. The act of experience itself is an in-between state between the different normalities. It implies some notable difference from the usual or the normal. To illustrate this, we can look at the experience of someone going through the passage, entering from the open terrain and ending up in the interior of the shopping mall. This space in its nature shares characteristics of the two, it is neither open or closed, neither fully outside or inside, nor it has any of the reasons why someone would go to either of them. With my explorations, it might be possible to shift the threshold of the experience, from the nature of the space itself, to what is within it, possibly creating some kind of identity that is not defined by what surrounds the space, where it can be seen as a place of its own.

"The study of space, from the humanistic perspective, is thus the study of a people's spatial feelings and ideas in the stream of experience. Experience is the totality of means, by which we come to know the world: we know the world through sensation (feeling), perception, and conception" (Tuan, 1979, p.388).

Conclusions on final design

The first result of the research is a toolbox of visual language that can be employed in my future work, as well as a proposal for the space of the passage. Presented methods can be used in other contexts, including both the graphical solutions and using the concept of liminality for analysis of functioning of the space.

Initially, with the work focused on the passage specifically, some kind of final design was expected, but as the concept shifted into a more general field, with using the site as a background for testing, the outcome was replaced by a collection of methods. One of the motivations for this decision was that it was not possible to value which of the approaches is more worthy, as finally each of them could function on its own, as well as several could be combined within the space. Finally, I made a full circle, by applying a specific design choice to the passage, as an example of application.

The work on the final part was very informative in terms of the consequences of certain design choices. The density of graphics is an important aspect, even though it can be only estimated subjectively. However, their influence on space is dominant, even when they do not take up majority of space.

Another aspect is how graphical elements work to dissolve the spatial boundaries. As they take up most of attention, the components of original structure become a background part of the visual composition. As seen from different perspectives, the interaction of existing environment and graphic interventions form different and sometimes unexpected 'cadres'.

When treating a space as a graphical composition, it is possible to see much more visual depth, the smallest interactions, that are usually not taken into account, as the focus is on the larger image of the structure. Here, the hierarchy of objects that are supposed to stand out, blend or fade becomes apparent. The additions allow to visually alter distances, interactions and importance between the different components of the space.

The presented method provides a way of radical visual change using only limited means, in terms of changes to the structure, cost and effort. In a way, it is a method of collage within a three-dimensional space where the existing structures and new elements form a coherent composition, even when they have totally different origin.

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ARK466 *Sustainable architectural design*
Ark 338 *Material & Detail*
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2015-2019 Bachelors programme, Warsaw University of Technology

Employment

2022, 2023 Teaching assistant at Chalmers

2021 Architect at Mag Design

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