

Kämpegatan 16

Transforming a building in a state of uncertainty

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ABSTRACT

The population living in cities is estimated to rise significantly in the coming years, which makes the need for developing sustainable and resilient cities more and more urgent. Consequently, the transformation and adaptive reuse of existing buildings becomes increasingly important with regard to sustainable urban development.

Buildings make up a significant amount of the built environment. Making use of existing, empty or inefficiently used buildings can provide a strategy to avoid further urban sprawl and the related claiming of more land. It simultaneously contributes to circularity and saving resources. Buildings have been and are presently designed as mono-functional objects, not able to react to changes. Therefore, buildings are at risk of facing redundancy and possibly considerable repeated refurbishment or untimely demolition.

Existing buildings are even more so threatened by demolition when geographically located within city centers or otherwise strategically. In addition, these structures are also strongly affected by ongoing development in their surroundings, endangering their existence. Further, demolition in particular concerns buildings which are not protected through local policies and do not fall under specific protection regulations.

Through a site and context analysis as well as thorough literature research, appropriate transformation strategies and suitable solutions for the transformation and reuse of a former storage building were developed.

The building finds itself in the dichotomy between significant future urban development as well as being located in a building block with several buildings bearing protection markings. However, the former storage building at Kämpegatan 16 does not fall under specific protection regulations.

The purpose of this thesis is to investigate potential transformation strategies which contribute to the building's use in the future and prolonging its life cycle, taking into account the heritage surrounding the building and the impact of future development.

With that, the thesis aims at questioning current procedures within urban planning with regard to the existing built environment and its impact on it. The outcome of the thesis is a proposal for the implementation of a mixed-use program onto the former storage building and the structural transformation.

KEYWORDS

Transformation, Adaptive reuse, Building resilience

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READING INSTRUCTIONS

The booklet is divided into seven chapters:

1 | Introduction

The introduction chapter provides a starting point for the thesis. The problem statement along with the purpose, aim, thesis question, method and delimitations is introduced, explaining the overall intention of the thesis.

2 | Background & Theory

The background chapter provides the base for the thesis project, and a theoretical framework to put the thesis in a current discourse. Current challenges the urban context faces are outlined as well as challenges regarding the built environment, and a discourse on demolition and transformation of buildings is provided.

3 | Context & Site

In this chapter, the theory is contextualized within the specific context of Gothenburg and the project site is introduced, as well as the immediate surroundings. Past, present as well as future of the site and its surroundings are outlined.

4 | Building Analysis

Within this chapter, an in-depth analysis of the building is given, including the interior and exterior structure, to understand the present state of the building and the base for the further transformation of the building.

5 | Principles | Transformation approach

The fifth chapter presents the principles towards the approach of the transformation of the former storage building. In addition, first iterations are shown, which investigate how the principles can be applied to the building in a general way.

6 | Design proposal

The sixth chapter contains the design proposal of the former storage at Kämpegatan 16 and is supported through drawings and illustrations.

7 | Discussion

The last chapter contains the discussion of the thesis and concludes the project. It gives an overall summary as well as how the research question has been answered and what has been added to the ongoing discourse around the project.

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01 | INTRODUCTION

This chapter provides a starting point for the master thesis. The problem statement along with the purpose, aim, thesis question, method and delimitations is introduced, explaining the overall intention of the thesis.

In light of climate change and global warming urban areas are constantly challenged to react to changing demands. Additionally, rapid urbanization makes the need for the development of sustainable and resilient cities increasingly urgent. On top of that, the ongoing demographic changes and urbanization processes put increasingly more pressure on cities to accommodate a growing amount of people in the future.

Empty or inefficiently used buildings, threatened by future demolition, provide a valuable existing resource within the urban fabric. Making use of existing buildings can contribute to circular economy and saving resources, as well as providing the possibility to implement housing typologies in them. Thus, they can carry significant environmental benefits. Furthermore, transforming existing buildings can be linked to social and economical benefits.

Existing buildings can involve challenges with regard to adaptability in use due to having been planned to serve a specific purpose. Because of their inability to react to changing demands, they become obsolete and are often subject to untimely demolition.

Their spatial and physical layout e.g. deep floor plans and rigid structural layouts, can potentially limit their capacity to react to immediate changing demands as well as implementing a variety of uses in them.

A focus on economical factors has contributed to building demolition. In the wake of climate change and global warming a shift is needed to ensure environmental aspects to gain more importance with regard to the built environment.

Due to rapid urban development, existing buildings are also at risk of being surpassed by the surrounding development and due to economic reasoning not seen fit to be kept, again being threatened by demolition.

The aim of this thesis was to develop a design proposal for an existing building in the urban context which questions current procedures within urban planning with regard to the existing built environment and its impact on it.

The purpose of the thesis was to investigate potential transformation implementations which contribute to an existing building's use in the future and prolonging its life cycle. Hereby taking into account the heritage surrounding the building and the impact of future development on the building.

The thesis further aimed at exploring the aforementioned predicament often seen between the old and new with regard to the built environment as well as seeking out solutions to face this predicament in a site specific context

The design proposal contributes to the current discussions on urban planning practices which regularly disregard the existing built environment. The project showcases that inefficiently used, existing buildings can also provide a valuable resource, which should be made use of. Not only with regard to heritage protection but also in from a sustainable and resilient building and development perspective.

RESEARCH QUESTION

How can an existing building be transformed as to counteract its possible obsolescence?

Subquestion

How can a mixed-use program be implemented in a former storage building and the building reactivated and reconnected with its surroundings?

METHOD

The methods used include research *for* design as well as research *by* design.

Theoretical research | Literature studies

Theoretical research consisted of studying scientific reports and literature about the topics of adaptive reuse, the transformation of existing buildings as well as the objectives regarding demolition of the built environment. The findings of the research provided the base for further design iterations and are outlined in the background and theory chapter. These findings are very relevant to situate the building in a broader context.

Research by Design

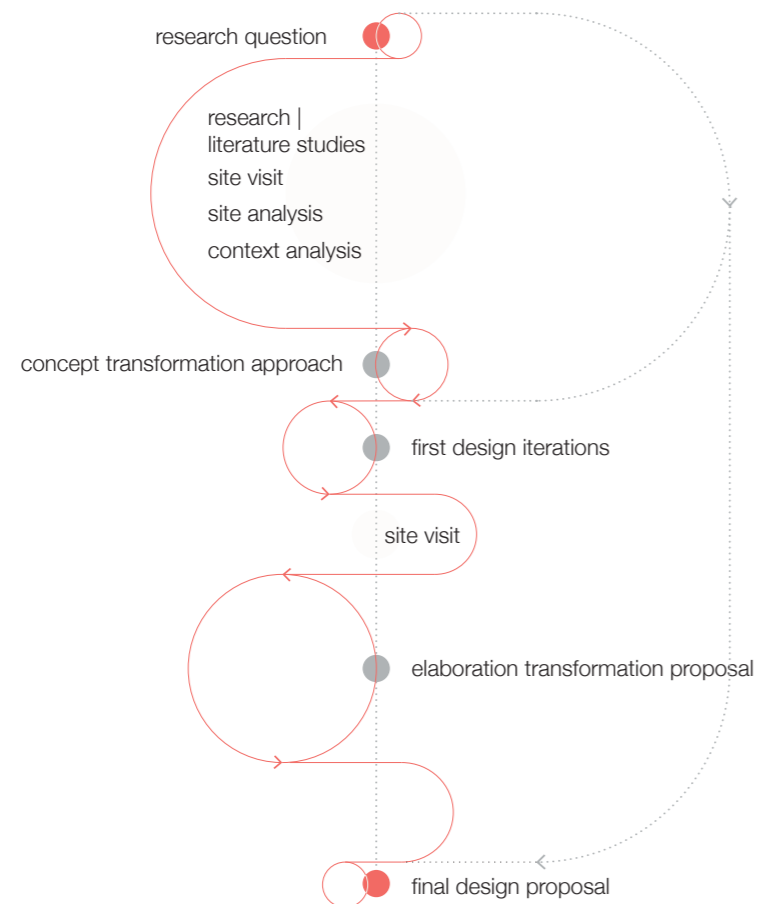
Using different sketching and drawing tools continuously throughout the project helped to define a vision for the buildings' transformation. Sketches as well as digital drawings and 3D modeling were used.

Site and context analysis

The analysis of site and context contributed to the design iterations and helped formulate the transformation approach towards the building. The existing building, its structure and the building's spatiality were relevant to understand, in order to determine how to further proceed with the transformation and design implementations within the building.

Site Visits

The site visits as a method provided different views and perspectives on the site and its surroundings, as well as the current use, spatial layout and its uncertain future. The site was visited several times over the entire project period, to continuously be in touch with the vision for the building and to refresh the impressions throughout the project period.



Process diagram

DELIMITATIONS

Due to the location of the site next to an area subject to substantial future urban development, the thesis does include literature on urban development. Nevertheless, the project is limited to the building as a site. A suggestion for a supplementary master plan on a bigger scale is not included in the thesis.

The thesis suggests adaptive reuse of an existing building in the urban context, but does not include program calculations concerning the transformations feasibility and economic aspects.

The project rather explores the existing building with regard to creating and enhancing spatial qualities through the design.

The detailed plans which cover the area currently do not allow for housing functions to be contained within the building. For the exploration of an adaptive reuse proposal for the building, the functions named in the detailed plan are not exclusively taken into account.

At the moment, the building is used as an office building. The thesis does partially build on the existing functions, but does not include all of them within the proposal for the transformation and adaptive reuse of the building.

Since current plans for the interior layout were not available the base for the project was provided by drawings from the 1964, containing the main structure of the storage building.

02 | BACKGROUND + THEORY

The following chapter discusses the current challenges the urban context faces and how the built environment and buildings in particular can react to these challenges and resulting changing demands. The chapter provides the basis to contextualize the discussed topics in the specific setting of Gothenburg.

Urban areas are constantly having to deal with challenges affecting their economic development and social wellbeing (Askar et al., 2021).

Challenges include, amongst others, global warming and climate change resulting in environmental degradation. In addition, the ongoing demographic changes and urbanization processes put increasingly more pressure on cities to accommodate a growing amount of people in the future. It is estimated that by 2050, 68% of the world's population will live in cities (UN, 2018), which makes the need for developing sustainable and resilient cities increasingly urgent.

On a smaller scale, issues lie with accessibility to affordable housing, resource shortages and building obsolescence and redundancy (Askar et al., 2021).

Resilience theory refers to the terms *adaptation* and *mitigation* as two objectives to oppose the issues of climate change. Mitigation seeks to minimize causes of climate change, whilst adaptation aims at lessening the shock on a system by improving their adaptive capacity (Askar et al., 2021). Askar et al. (2021) stress that adaptation and mitigation strategies need to be integrated to contribute to sustainable urban environments and enhanced resilience of these.

Buildings make up a significant portion of the built environment and cityscape, and are often pressured to adapt to aforementioned challenges within the urban fabric. However, buildings are usually designed for a specific purpose, as mono-functional objects, making adaptation to changing demands all the more difficult. This in turn can lead to building obsolescence. Obsolete structures lead to high building vacancy rates (building redundancy), which then either require extensive renovation work or lead to premature demolition (Askar et al., 2021).

The building and construction sector together account for 39% of energy related carbon dioxide emissions (Baker et al., 2021).

Consequently, the transformation of existing buildings can contribute to climate change mitigation as well as adaptation through the ability to recycle resources on site as well as the ability to foster the embodied energy in existing buildings (Askar et al., 2021).

Transforming existing buildings can also provide a source to create much needed housing and counteract building obsolescence and redundancy within the urban context.

Empty or inefficiently used buildings in the urban context can consequently provide a valuable, existing resource to contribute to urban resilience and sustainable urban environments.

The following paragraph outlines a few factors that influence the decision of whether buildings are kept and transformed, or demolished.

In case of buildings' obsolescence, there are usually two options: *retention*, possibly accompanied by further transformation or *demolition* and replacement with a new structure (Baker et al., 2021).

In literature the main benefits of retention are described as the conservation of heritage and the positive environmental impact through savings in material with the encompassed reduced embodied energy and greenhouse gas emissions (Baker et al., 2021).

The preservation of heritage is frequently a key factor when retaining existing buildings, as opposed to the embodied emissions. In cases where there are meager arguments apparent with regard to the heritage value of a building, many are demolished and replaced rather than retained (Baker et al., 2021). Consequently, local and national policies play a rather important role with regard to demolition or retention decisions.

In urban areas, which due to their location in the urban context are affected by comprehensive development plans, buildings are particularly threatened by demolition. Here, the focus often lies on other incentives, such as economical benefits, than the preservation of the architectural heritage and preservation of possibly one building.

The retention of industrial buildings and sites can be perceived as integral to a city's identity, reflecting the "genius loci" of an area or site and providing a shared link for the community (Baker et al., 2021). Industrial sites can showcase the industrial history of a city as well as showcasing architecture and buildings from different phases of the industrial development. They could also contribute to the understanding of urban development in particular time periods (Baker et al., 2021).

Keeping existing buildings, instead of demolishing them can therefore also have positive social implications through strengthening the sense of identity and consequently community (Baker et al., 2021).

As mentioned before, the building sector accounts for a high amount of carbon dioxide emissions (Baker et al., 2021).

The retention of existing buildings can improve reduction of such emissions within the sector, and hence support climate mitigation as well as adaptation through the process of recycling resources on site and the ability to foster the embodied energy in the existing building (Askar et al., 2021).

Usually, there are several stakeholders involved in this decision making process, with conflicting and not necessarily overlapping interests. This can include the property owner(s), city (administration) and people of the city.

In many instances, demolition is chosen over retention by property owners, since it provides them with the opportunity of less restraint when it comes to the design choices of the new structure (Baker et al., 2021).

Economical reasoning behind demolition or retention is especially relevant for the building owner. The conflict between economic growth and the preservation of the built environment has a significant impact on decisions regarding demolition and retention. Lower operational impacts of newly built structures are regularly mentioned as a threshold to the retention of a building as opposed to existing buildings (Baker et al., 2021). Operational energy refers to the energy consumed through the day to day running of a building and maintaining the internal environment, including space heating, cooling and lighting. New buildings are often much more efficient in that regard, bringing along positive economical benefits for the building owner (Baker et al., 2021).

CURRENT DISCOURSE

Apart from the apparent environmental benefits of retaining and possibly adapting and reusing existing buildings, there is currently already a public discourse around the topic of demolition versus retention.

In Germany, a coalition of architects, academics and institutions published an open letter to the German Federal Minister of Building. In it, the initiative calls for a temporary halt to further building demolitions and reorganization of the regulations currently in force. Future permits for demolitions should include the common good and the overall life cycle analysis of buildings as central criteria (Initiative Abriss-Moratorium, 2022).

The initiative stresses the importance of environmental aspects to be considered in demolition processes to fulfill the set climate goals. The open letter carries the potential of reaching the public, encouraging a socio-political discourse around the topic of building demolition.

In Gothenburg too, the broader public gets increasingly involved in the discourse of demolition of existing buildings, especially with regard to buildings that are considered to be architecturally and culturally relevant landmarks. This shows people's attachment to places and sites and the identity these buildings can create for a community or even a city. An example in Gothenburg is seen with Gamla Hovrätten (The old court of appeal for west Sweden, built in 1948) which was prevented from being demolished (Riv inte gamla hovrätten, 2013).

To further engage with the current discourse, it is important to contribute to it through exploring the transformation of an existing building, and understanding potential impacts this transformation can carry within a specific context.

ADAPTIVE REUSE AS A TRANSFORMATION STRATEGY

There are several different approaches to the transformation of existing buildings, spanning from mere preservation to retrofitting of a building. This paragraph explores adaptive reuse as a specific transformation strategy in relation to benefits, challenges as well as common practices.

The focus on economic factors has contributed to premature demolition of buildings. In literature it is also stressed that a shift in thinking is necessary with regard to how to make most of existing resources and a shift towards reuse and refurbishment as opposed to building new (Langston, 2008).

A way to contribute to climate change adaptation can be to make better use of the already existing built environment. Existing buildings that are subject to obsolescence or rapidly approach disuse and potential demolition can be considered a “mine” of raw materials for new projects (Langston, 2008).

Langston (2008) describes further that rather than to extract these raw materials during demolition or deconstruction, it is more effective to leave the basic structure and fabric of the building intact and change its use. Langston (2008) describes this approach as adaptive reuse.

Adaptive reuse is concerned with converting buildings into other, more effective and efficient uses. More effective is described by Douglas (2006) in that the building has an extended useful life.

In contrast to mere demolition and preservation of the existing, adaptive reuse perpetuates a continuum of growth and change as written by Wong (2016), thus leaving room for the built environment to be considered more dynamic as opposed to static.

As a strategy, adaptive reuse is about overcoming obsolescence and redundancy in buildings. In addition, it serves to ensure the prolonging of the use of a building threatened in the future by dilapidation, vacancy and eventual demolition (Douglas, 2006).

In the light of sustainable development and with regard to the effects of climate change, adaptive reuse has significant implications (Langston, 2008).

Adaptive reuse of buildings as a transformation strategy supports the prolonging of a building's life cycle, the avoidance of demolition waste, and encourages the reuse of embodied energy.

Along the environmental benefits, it also carries with it social benefits and helps to retain national heritage (Langston, 2008).

Commonly, adaptive reuse is associated with converting office buildings into residential and industrial buildings into commercial or residential use (Schmidt & Austin, 2016).

There are a number of possible combinations for changing a building's use. However, single-use to mixed-use adaptation of a building is more prevalent, usually because the configuration and size of a building may not be suited for a single occupancy (Douglas, 2006).

Aspects such as to encourage maximum reuse of the existing building components and a restoration of passive aspects of the original design are also considered relevant with regard to a successful adaptive reuse project (Conejos et al., 2011).

These projects not only require good design but also careful planning that consider the surrounding environment (Conejos et al., 2011).

MIXED-USE AS A CONCEPT

Mixed-use development is a concept which refers to the blending of diverse uses, such as residential, commercial, cultural and institutional use, into one space.

Mixed-use development can be applied to different scales, for example on a building, neighborhood or building block.

On the neighborhood scale, mixed-use can contribute to more attractive, viable as well as safer neighborhoods to live and work in. It leads to neighborhoods being frequented throughout diverse times during day- and nighttime (Coupland, 1997). On the broader scale, mixed-use can also contribute to sustainable urban development since the blend of different uses leads to less car dependence and thus carries environmental benefits (Coupland, 1997).

On the building scale mixed-use can have similar implications.

With regard to economic factors, mixed-use in a building can be an efficient way of maximizing the use of a property that might otherwise remain empty or only partly occupied (Douglas, 2006).

Another benefit mentioned by Douglas (2006) is that a mixed-use building can accommodate complementary functions.

Diverse functions, e.g. residential, commercial and cultural functions, can fuel each other and contribute to a space's attractiveness for the users, thus also contributing to a space's vitality (Douglas, 2006).

With regard to adaptive reuse, mixed-use buildings also bring along challenges: different functions are obliged to follow different standards, thus resulting in challenges in terms of planning requirements, since different rules and regulations may apply (Douglas, 2006).

As a result, it can potentially be more difficult to implement different functions within an existing building, since a building structure is already given and different interventions might be required for diverse functions.

03 | CONTEXT + SITE

The following chapter applies the aforementioned theory onto the context of Gothenburg. Further, the project site is described to understand the setting of the site and building.

GOTHENBURG CITY DEVELOPMENT

This paragraph gives a brief overview of the housing situation in the broader context of Sweden and Gothenburg as well as an outline of Gothenburg's current urban development agenda.

According to a report from the Swedish centralbank (Emanuelsson, 2015), residential housing construction in Sweden has been low, especially in relation to the needs arising from a rapidly growing population and in light of ongoing urbanization processes. Stockholm as well as Gothenburg and Malmö have been impacted by the housing shortage mostly, since these areas are focal points for surges in Sweden's rate of urbanization and immigration (McElroy, 2017). According to Emanuelsson (2015), the demand is not covered, especially with regard to rented accommodation, resulting in a problem as different types of housing are needed.

As explained above, housing construction is a challenge that Gothenburg is confronted with and that is becoming increasingly important in the wider scheme of the sustainable urban development agenda in Gothenburg.

According to Göteborgs stad (n.d.), Gothenburg is no exception in facing the difficulties of housing shortage and an increasing demand in residential dwellings.

According to Göteborgs Stad website, Gothenburg is expected to have another 115.000 inhabitants within the next 15 years, resulting in the need to build homes and workplaces as well as developing the accompanying infrastructure and parks (Göteborgs Stad, n.d.).

As attested by the city, Gothenburg is undergoing its biggest development leap in modern history. The intention to catch up with the housing shortage is clearly stated in order to accommodate the growing number of people (Göteborgs stad, n.d.).

Göteborgs stad (n.d.) also states that the construction of different types of housing is needed to meet the various needs of a wide range of people. Amongst others, this includes student housing and special housing. Special housing is, for example, housing with special services or housing for the elderly (Göteborgs stad, n.d.).

Beside the growing population and resulting housing shortage, Gothenburg is also faced with other challenges: For once, Göteborg Stad (n.d.) describes Gothenburg as a "divided" city. There are big dissimilarities in the living conditions in different parts of the city. Furthermore, the major traffic routes and other barriers separate people.

A third challenge is the changing climate that will affect Gothenburg in several ways. The city of Gothenburg is currently already undergoing major development in many areas.

Gothenburg's city center and former industrial areas along the river are or will be subject to extensive development within the project of Älvstaden (Rivercity Gothenburg, 2012).

Älvstaden (Rivercity) focuses on transforming areas along the river into mixed-use, diverse districts, using the waterfront, which used to be relevant for industries, to make it more accessible, because of its potential recreational qualities.

The project Rivercity Gothenburg aims to contribute to sustainable development not only in Gothenburg but also West Sweden. The vision is to integrate social, environmental and economic aspects to create a sustainable city environment (Rivercity Gothenburg, 2012).

The three main objectives of the Rivercity Gothenburg are: Connect the city, embrace the water and reinforce the center. Rivercity Gothenburg is further said to be accessible, dense, mixed and green. The aim is to create a diverse attractive urban environment (Rivercity Gothenburg, 2012).

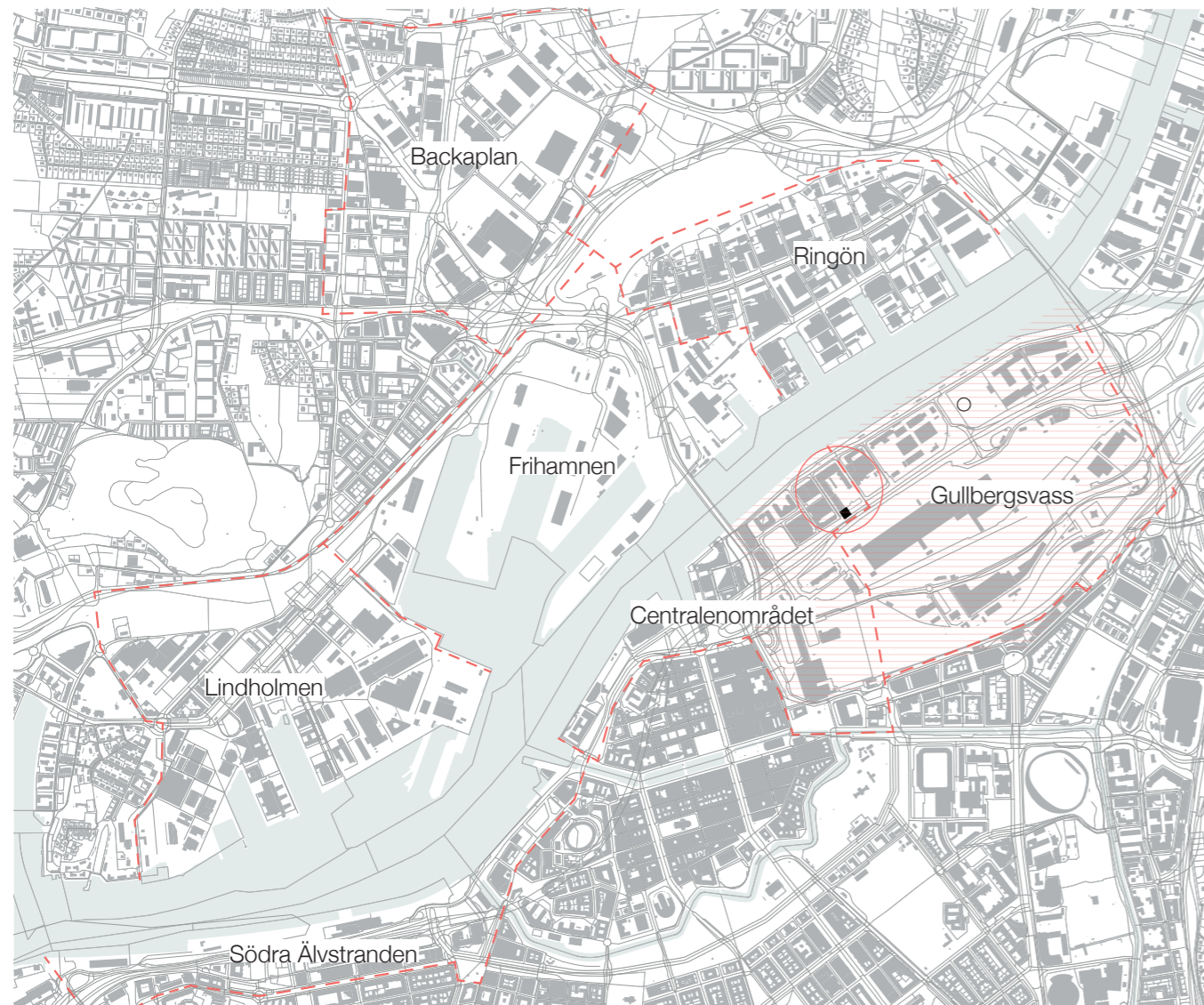
GULLBERGSVASS

The project site is located in Gullbergsvass. Gullbergsvass is one of the areas included in the vision of RiverCity Gothenburg, it falls partially under the area Centralenområdet. It is located in central Gothenburg on the eastern side of the river, in close proximity to the central station. Gullbergsvass is at present characterized by a relatively one sided content with mainly offices and industries.

Gullbergsvass will also undergo significant transformation and take on a new character after the covering of Götaleden. The area is transformed from a neighborhood characterized by industry and

transport to a mixed-use area instead. It will be reinforced with a diversity of uses, which is, in the Rivercity Gothenburg Vision (2012), said to build on the local qualities as well as new green spaces.

The development within Gullbergsvass and the covering of Götaleden will certainly have a significant impact on the existing buildings in the area. Many buildings and landmarks within the area have been torn down in the past. The new development in the area raises the question of what is to happen with the few existing buildings left, especially those not included in local protection policies.



- - - Development Areas Rivercity Gothenburg
- ▨ Area of Gullbergsvass
- Location | Site

🕒 Overview Map | Areas Rivercity Gothenburg

GULLBERGSVASS | History and heritage

Until the mid 19th century, Gullbergsvass was a large area of reed beds. In the eastern part Skansen Lejonet was built in 1687. The area was limited to the west by the city's fortifications.

When the need for land increased the area was filled in. By 1855, solid ground had been established in the southwest and the state railway line towards Stockholm was built in this area (Lönnroth & Stadsmuseet, 1999).

In the development plan from 1866, Gullbergsvass was presented as a harbor area with quays along the river and an inner system of canals. The plan was implemented along the river, including the construction of Gullbergskajen, which was completed in 1899 (Lönnroth & Stadsmuseet, 1999).

Within the quay, a series of uniformly shaped blocks were placed, which were used for both businesses and landshövdingehus (governor's mansions) with housing. The gasworks, a station for the sewage plant, the Tobacco Monopoly's facility and warehouses and offices for smaller businesses were also constructed. In the late 19th and early 20th century, five new railway lines were added (Lönnroth & Stadsmuseet, 1999).

Around 1970-90, the buildings in the western part of the area between Gullbergskajen and Märten Krakowsgatan were demolished. They were replaced by new buildings containing offices. Following this, port activities were no longer carried out. Within the Gullbergsvass district there are several individual buildings of cultural and historical value (Lönnroth & Stadsmuseet, 1999).

KV. 6 BRONSEN | History and heritage

In "Kulturhistoriskt värdefull bebyggelse i Göteborg" (Lönnroth & Stadsmuseet, 1999) Kvarteret Bronset, the building block as a whole, is designated in the city's conservation program and marked as cultural and historical valuable (Fig.1: Lönnroth & Stadsmuseet, 1999, S. 47).

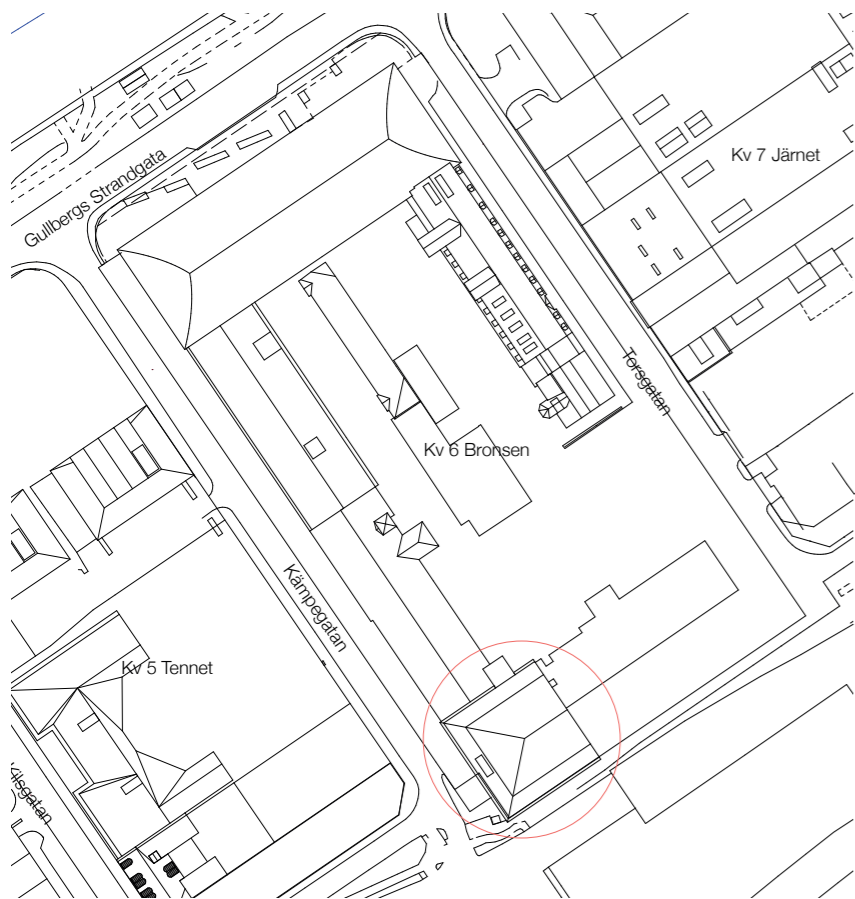
The activities of AB Vin & Spritcentralen and Svensk Tobaksmonopolet have dominated the building block since 1917 (Stadsbyggnadskontoret, 2021). Kvarteret Bronsen is the block with the highest cultural and historical value in Gullbergstrand.

The main building facing Gullbergskajen (Pagoden) was built in 1928 according to drawings by the architect Cyrillus Johansson. The Pagoden building has an unusual design with a strong, hipped and flared copper roof and facades and windows with a slight slope.

A part of the south-east corner of the building block was demolished in 1996 (Lönnroth & Stadsmuseet, 1999). Several buildings within the block also contain specific protection markings.



Figure 1: En liten del av västra Gullbergsvass ingår i riksintresseområdet "Göteborgs innerstad. Lönnroth, G & Stadsmuseet. (1999)



Kämpegatan 16 | Location within Kvarteret Bronsen | M 1.2000

The chosen building is located within Kvarteret Bronsen at Kämpegatan 16, on the south-west corner of the plot. Kvarteret Bronsen contains a variety of offices as well as a few lunch restaurants. The building at Kämpegatan 16 was built as an office and warehouse for AB Vin- & Spritcentralen according to plans from 1963. Currently, the building is occupied by several companies using the building for offices. In addition, it contains a gym as well as a music center with practice rooms. Part of the building is used for storage purposes for the different companies (Stadsbyggnadskontoret, 2021).

The building is affected by two detailed plans. The northern part of the building is included in the detailed plan 1480K-II4719. This plan came into effect in 2004. The detailed plan permits offices with commercial activities on the ground floor. The southern part of the building is covered by the urban plan 1480K-II-3097. This plan was enacted in 1964. The plan permits

trade and storage and other premises (not residential) if considered appropriate by the Building Committee. The detail plan from 2004 shows that several buildings within the building block are bearing protection markings (Q/q-mark). There are slight differentiations between the q markings.

The mark q1 refers to particularly valuable buildings that may not be altered according to PBL 3:12. The building may also not be demolished (Detailplan 1480K-II-4719).

The mark q2 indicates that existing dormer windows shall be preserved. New roof windows may be added but shall be of a size and shape in keeping with the architecture of the building (Detailplan 1480K-II-4719).

The building at Kämpegatan 16 does not have a q-mark designated to it, meaning, it is not falling under local policies regarding the protection regulations of Gothenburg, making it a sensitive topic for further planned development in the area.

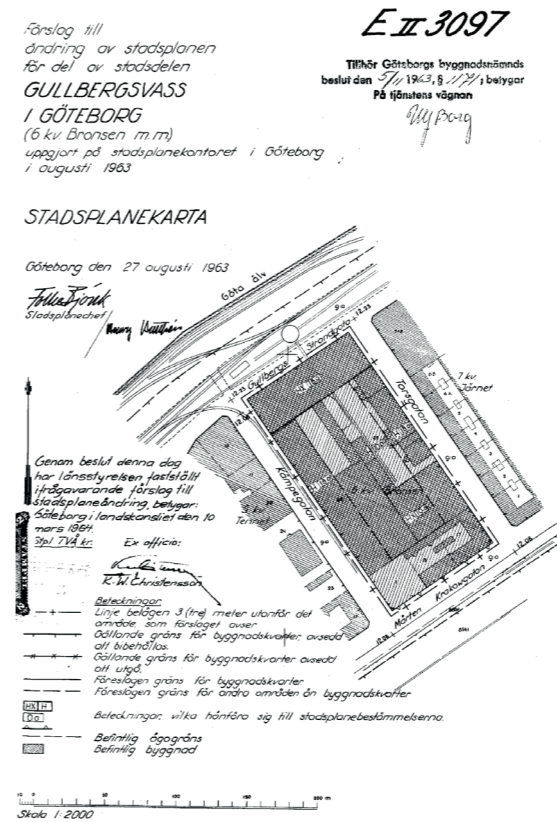


Figure 2: Gullbergsvass 6 Kv. Bronsen Urban planning map (1964). Detailed plan 1480K-II-3097. City Planning Office

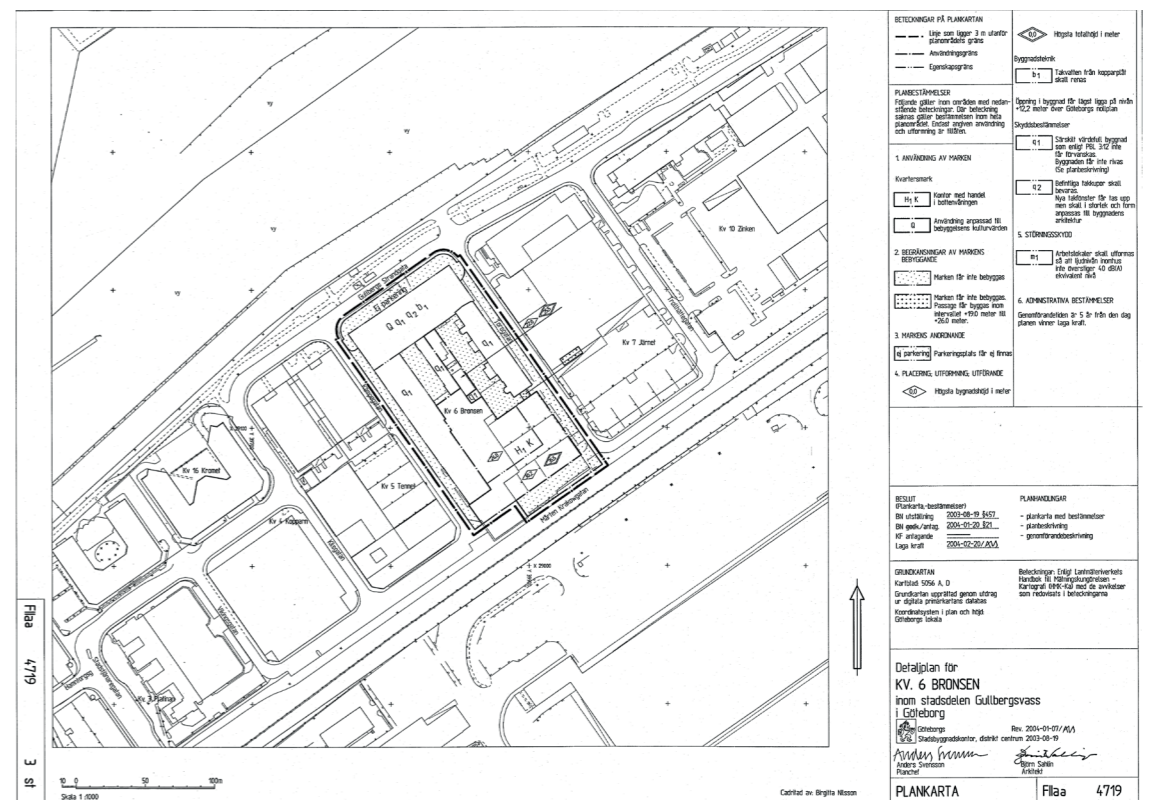


Figure 3: Plan map Kvarteret Bronsen (2004). Detailed plan 1480K-II4719. City Planning Office

There are currently several sites under development within the central area of Gothenburg, the area of Gullbergsvass and in very close proximity to the former storage building at Kämpegatan 16.

The site is located directly adjacent to the E45 and the covering of Götaleden will therefore affect the site significantly.

The purpose of the plan for Götaleden is to enable new urban development and to aim to give the area an urban character that adapts to its central location within the city of Gothenburg.

According to the plan description (planbeskrivning) of Götaleden by Göteborgs stad (2019), part of the land of Gullbergsvass 6:24 (Kvarteret Bronsen) is included in the detailed plan in order to extend the building rights of the block and to connect it to the overpass and its new development.

On top of Götaleden, the new development will mainly contain residential, office and center purposes. The term “center purpose” in the Planbeskrivning of Götaleden from 2019 (Göteborgs stad, 2019) refers to non-disruptive activities that should be centrally located or easily accessible to many people. Center uses include offices, cinemas, libraries, theaters, community centers, gyms, restaurants and hotels. Through the addition of more diverse functions within the area the planned development is said to increase the movement around the area, according to the planbeskrivning by Göteborgs stad (2019). This in return will create a greater sense of security, which is currently not given. The mix of functions within the blocks will allow for people to move around the area at different times of the day.

The covering of Götaleden is also expected to provide opportunities for recreational areas along the river, due to an increased access to the riverfront because of newly planned connections (Göteborgs stad, 2019). Air quality and noise impact on the surroundings are also said to improve with the tunnel, making residential functions much more sensible.

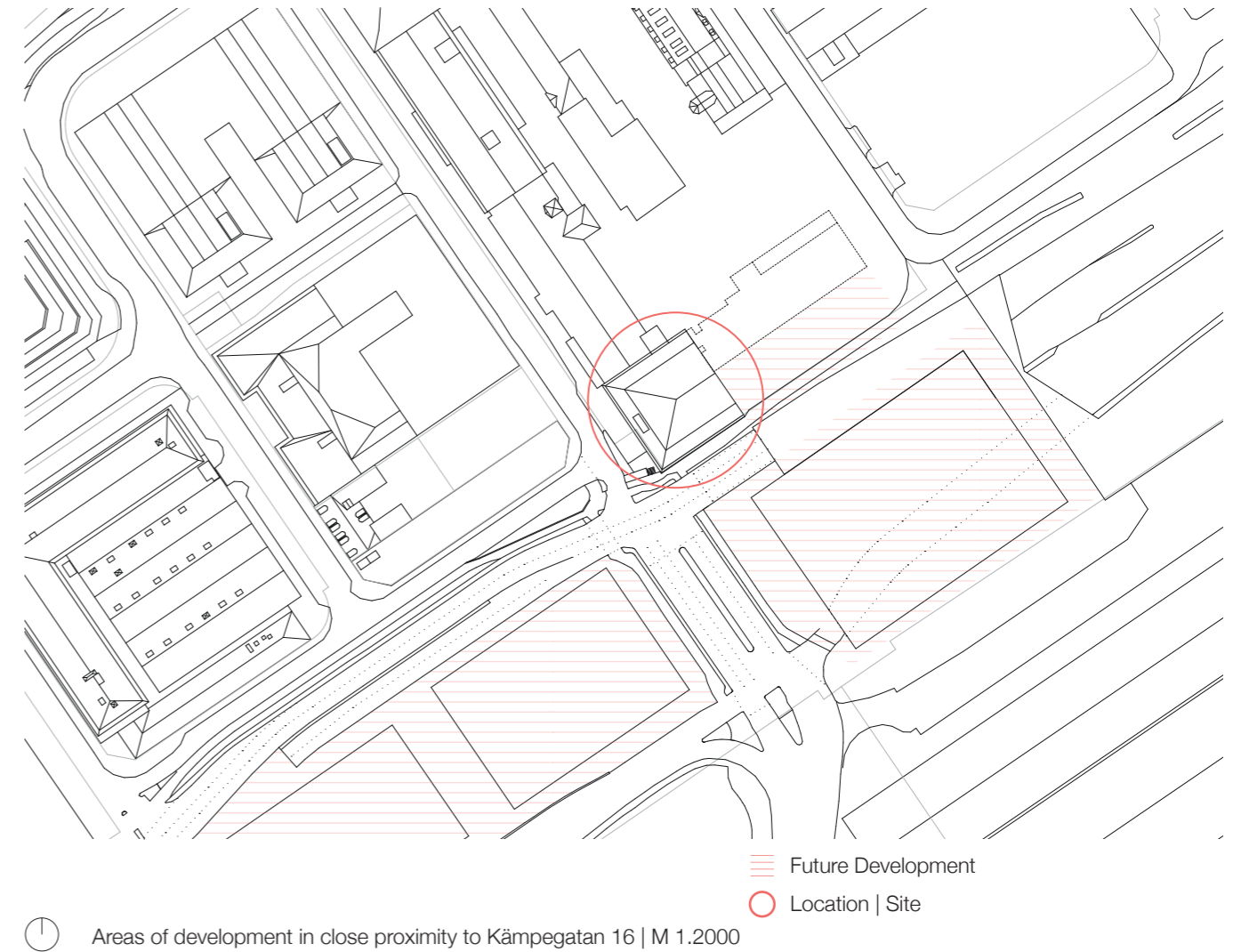


Figure 4: The illustration shows the blocks in aerial view from the northeast. Illustration: White Arkitekter, City Planning Office (2019). In: Detaljplan för överdäckning av Götaleden.

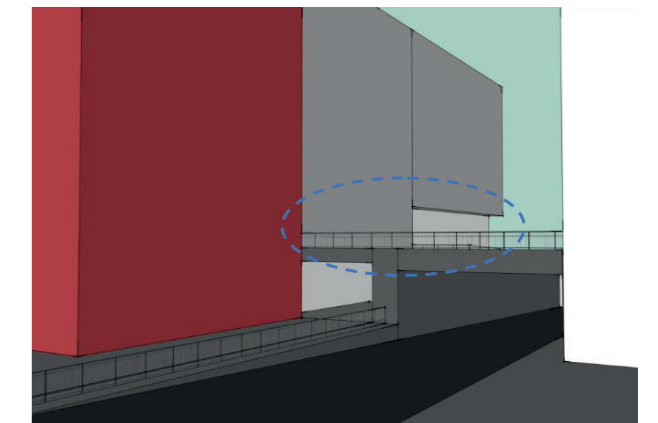


Figure 5: The illustration describes the overhang (marked with a blue dotted line) allowed on the plan map in Kvarteret Bronsen. Illustration: City Planning Office (2019). In: Detaljplan för överdäckning av Götaleden

04 | BUILDING ANALYSIS

In this chapter, the building is explored with regard to its closer environment as well as the building structure and its physical features. Existing attributes are explained and conclusions drawn of what the building is lacking with respect to holding up in the future. The analysis includes the exterior around the building, the facade, the internal structure and circulation and, lastly, the current use of the building.

EXTERIOR

The building at Kämpegatan 16 is completing the building block Kvarteret Bronsen.

In the north west, the building is bordered by another buildings. As a result of past development regarding the roads at Mårten Krakowgatan, the former storage building at Kämpegatan 16 is affected as follows: The pedestrian walkway has been raised leading to a loss in clear visibility of the corner entrance of the former storage building [Image 1].

The underpass is located in close proximity to the building creating a passage between the two [Image 2+4].

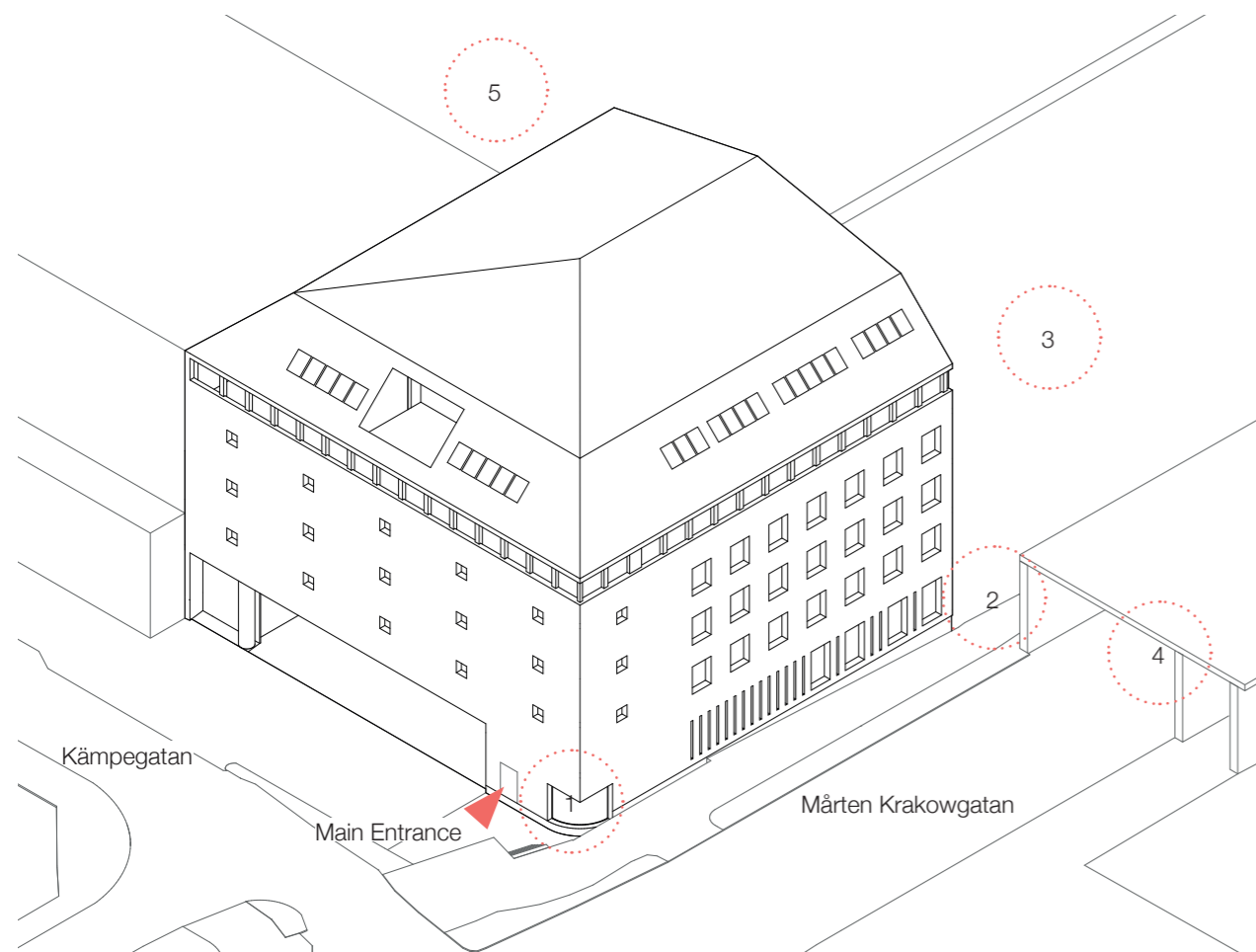
To the east of the building a parking lot is currently located, reducing recreational qualities of the courtyard created within the building block [Image 3]. In addition, the parking lot disrupts the connection of the building at Kämpegatan towards the other buildings as well as activities spanning in between them [Image 5].

The noise pollution caused by the underpass and adjacent road also leads to a loss in recreational qualities within the building block.

CONCLUSIONS

Due to the proximity to heavily trafficked streets and the resulting noise, there are currently few opportunities to linger directly around the building. The building and especially the corner in the southwest have lost presence due to the previous reconstruction of the streets.

The materiality and condition of the walkways around the building, as well as the lack of greenery, do not invite people to pause.



Axonometric view building | M 1.500



Image 1



Image 3



Image 2



Image 4



Image 5

STRUCTURE

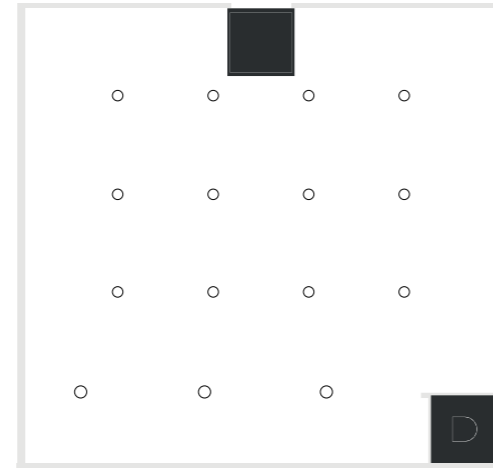
The former storage building consists of seven stories including the basement. The supporting structure consists of a structural column grid that extends through all floors. Towards the top, the columns gradually taper. The floor heights also decrease towards the upper levels.

The load bearing structure helps to support the dimensions of 28m x 30m in plan as well as the building height of roughly 28 m.

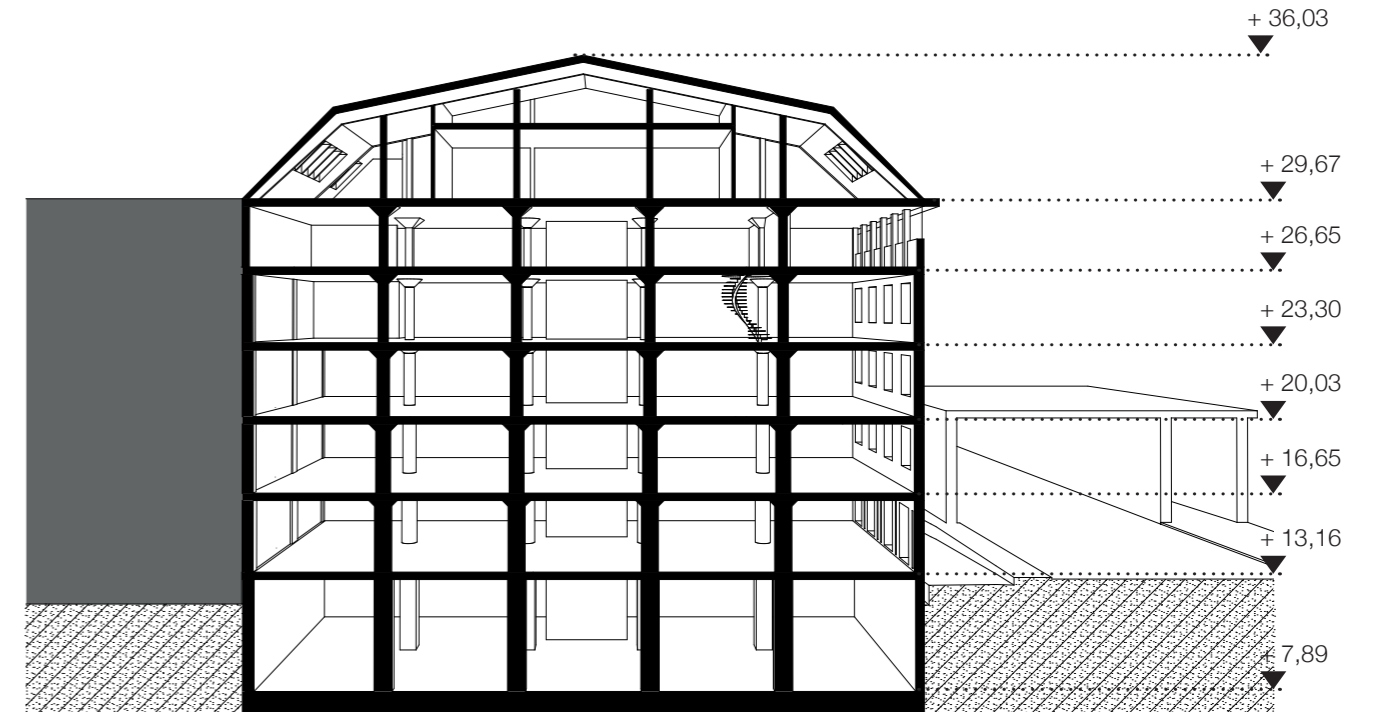
The building contains two cores. The main circulation core, which includes the staircase and an elevator, is located in the south-west of the building and creates a corner entrance at Kämpegatan and M. Krakowgatan. A freight elevator is located on the north-east facade of the building.

CONCLUSIONS

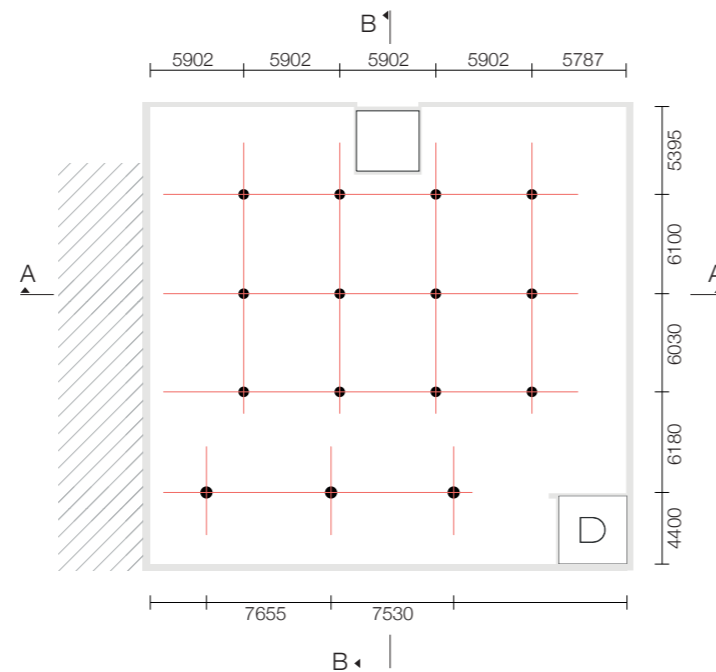
The open column structure allows for flexibility within one floor. The sections make the horizontal rigidity apparent that is currently prevalent within the building. The depth of the building can possibly pose a challenge in implementing new uses, mostly with regard to providing the new functions with efficient lighting.



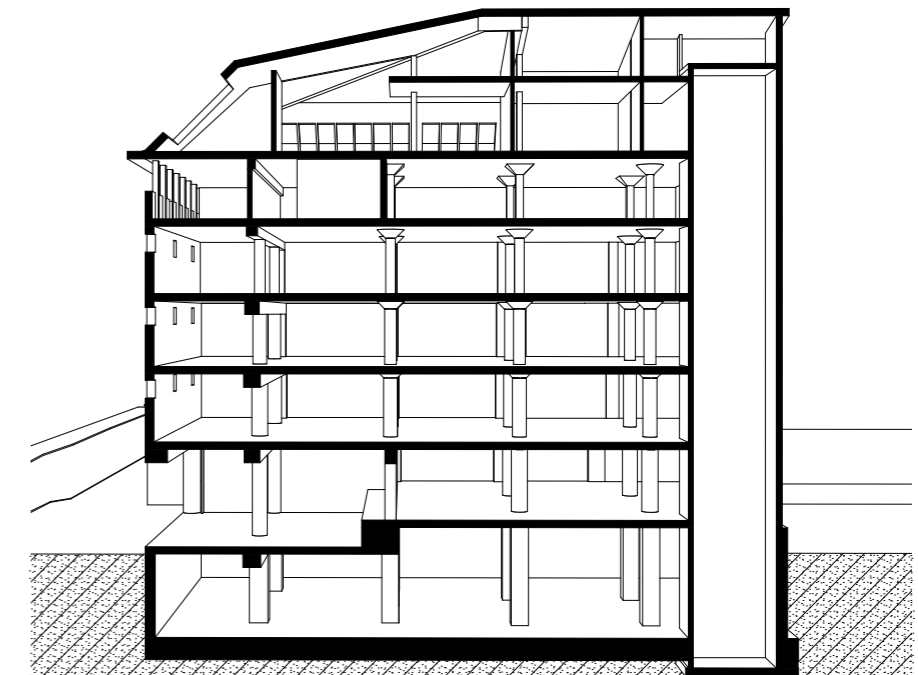
Core | Staircase - Elevator



Perspective section AA



Column grid



Perspective section BB

**FUNCTIONS |
VERTICAL CONNECTIONS**

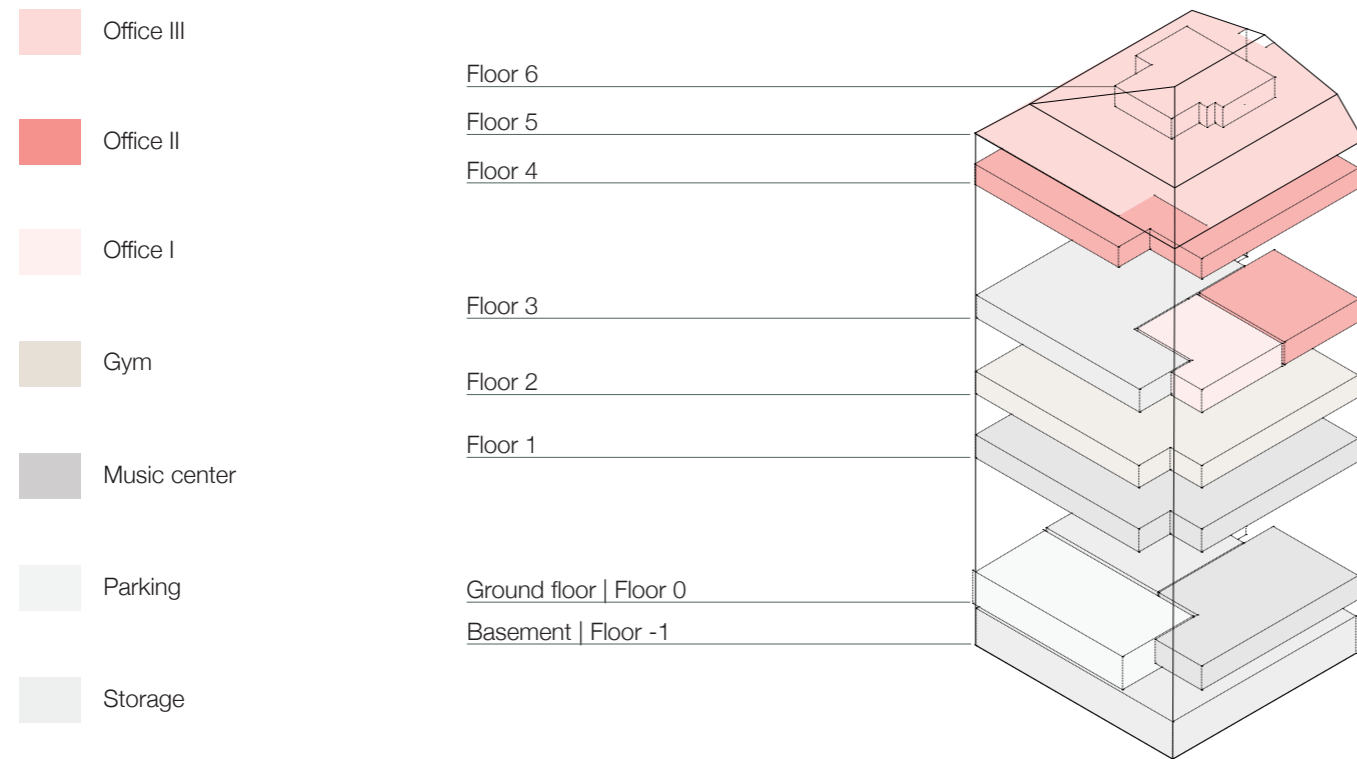
At the moment, the building mostly contains offices for several companies. In addition, a gym and music center also rent floors within the building. Some of the space is used as storage space by the offices.

The former storage building, as mentioned before, has one main circulation core, located in the building corner in the south-west. The main staircase leads up to the 4th floor. Due to the fifth floor originally not being in use, the main staircase does not lead further up. Instead, a new staircase was inserted. Additionally, a staircase serving as the fire safety staircase was added later on.

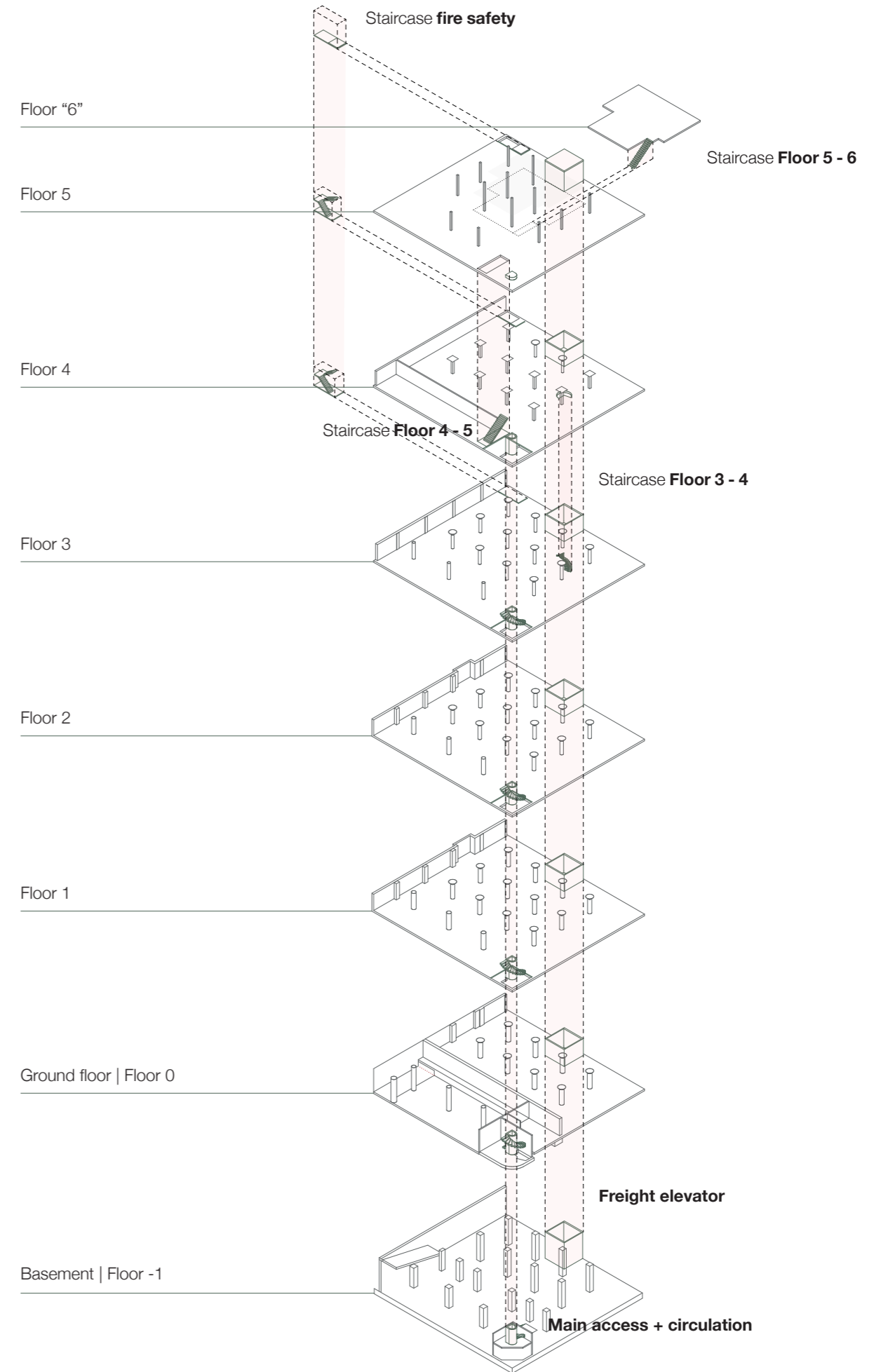
The offices currently located in the building are only placed on one floor and do not have vertical overlaps. An exception is the office space on the 4th floor which has a staircase leading to the third floor and a meeting room and lunch space for this particular office.

CONCLUSIONS

At the moment, the functions in the building are very one-sided. Exceptions to "standard" office typologies are the music studios that belong to the music center and gym. Vertical connections within the building exist, which can be made use of in the future of the project. The functions currently are not connected with each other. If vertical connections exist, it is within the same function. Apart from not being connected physically through the building structure, the functions also do not have space to encourage interaction and exchange between them.



Axonometry | Functions



Axonometry | Vertical Circulation

FACADE | DAYLIGHT

Since the building is adjacent to another in the north-west, it has only three exposed facades.

The facade to the north-east does not contain any openings, due to a building being located on the neighboring plot originally.

The facade in the south-west contains the main entrance at the corner of the building as well as the old loading dock, which is currently used as parking space. The openings on this facade have not changed in size or location.

The facade in the south-east originally had the same opening sizes as the facade towards Kämpegatan, but underwent changes to the windows and openings in the 1970s. In addition, openings were added.

The roof initially did not contain any openings. They were added in the beginning of the 2000s, when the interior was adjusted to incorporate additional office space.

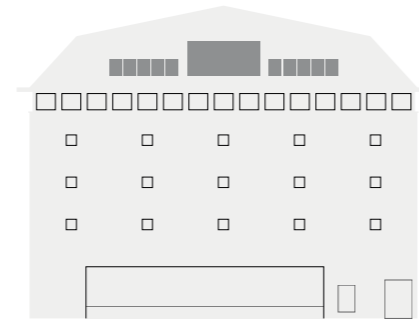


Diagram south-west facade | Kämpegatan

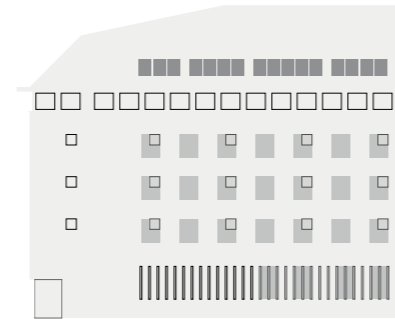


Diagram south-east facade | Mårten Krakowgatan

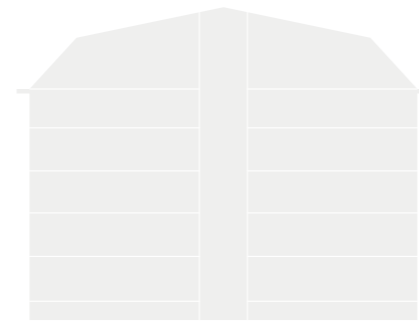


Diagram north-east facade | Torsgatan

CONCLUSIONS

Due to only having two facades containing window openings, there is currently an insufficient supply of daylight throughout the entire building floors for diverse functions to be implemented. An exception is the space under the roof, since it is provided with windows and light from three sides.

As several openings are "original features", there is a possibility to maintain part of the visual characteristics derived from the building's original industrial use.

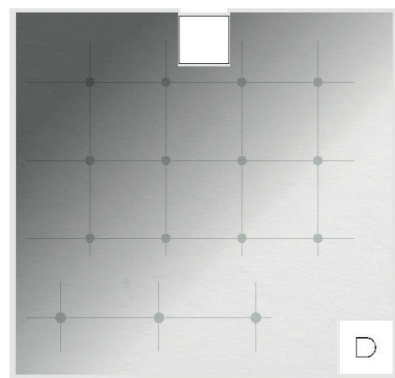
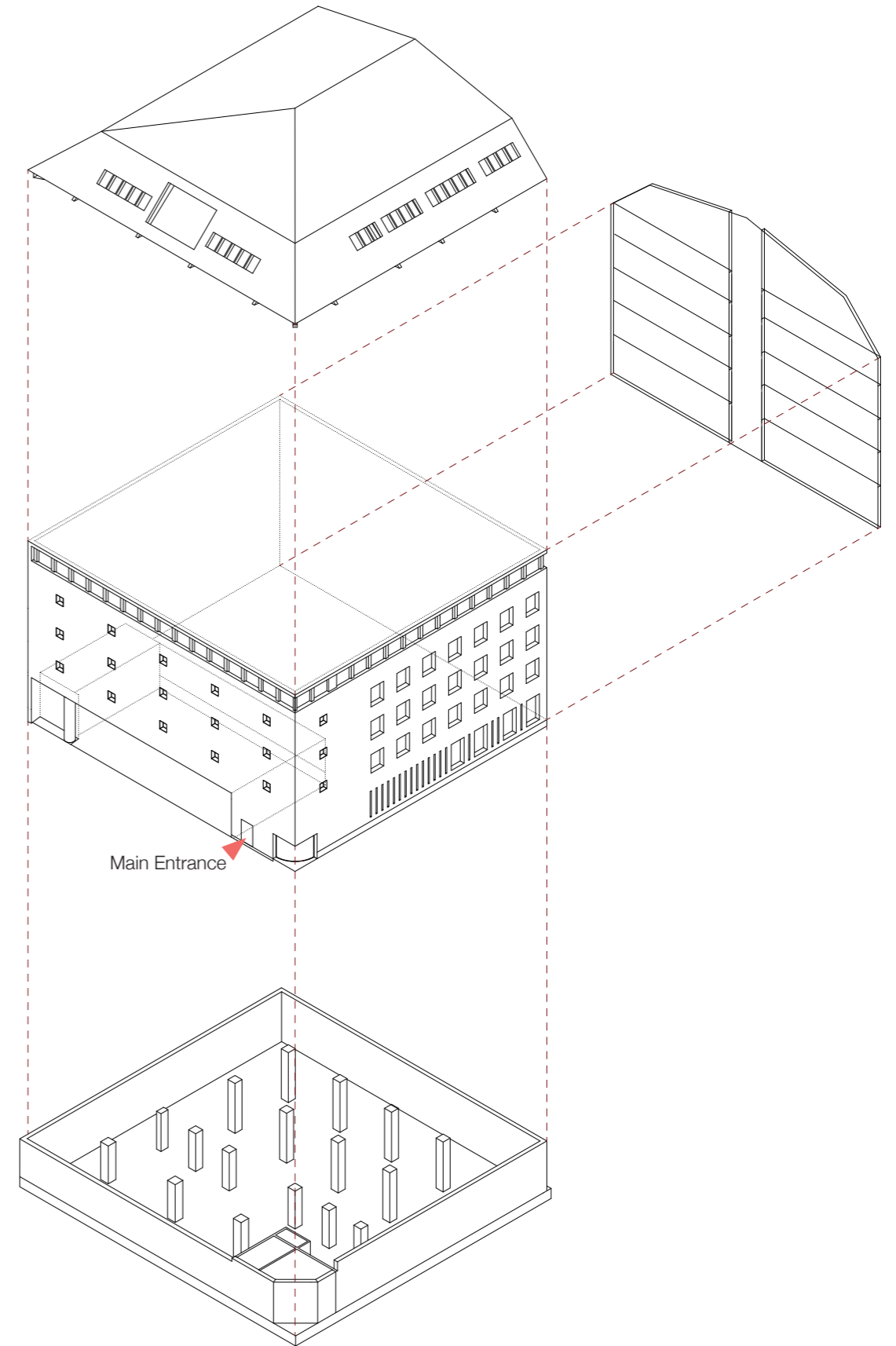
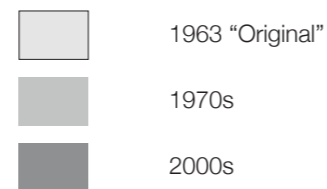


Diagram | Light distribution



Axonometric view | Facades

**IMPRESSIONS |
MATERIALITY AND ATMOSPHERE**

EXTERIOR

Due to having undergone several changes in the past, the facade has several different types of openings and windows. The facade materiality consists of bricks to a great extent, except for the facade in the north-east. The materiality on this facade was changed from Eternit to Aluminum panels in the 1980s.

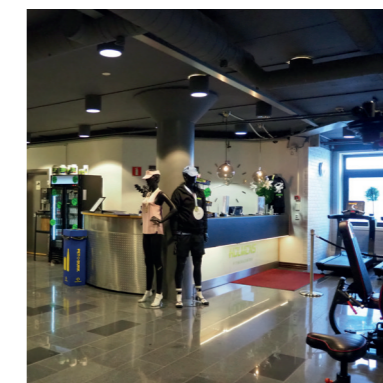
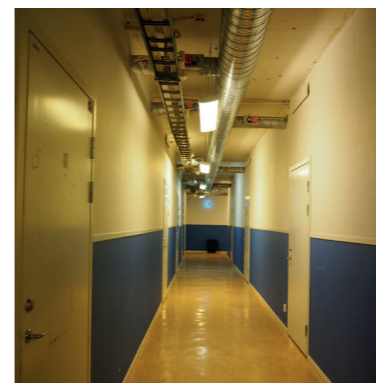
INTERIOR

Several rooms within the building are at present not provided with direct or indirect natural light. Due to the spatial layout, the building contains several long circulation corridors only provided with artificial light sources. The different functions and their interior spatial qualities are currently in very different states, with some having undergone more recent renovations.

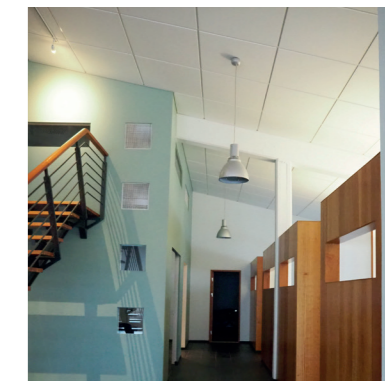
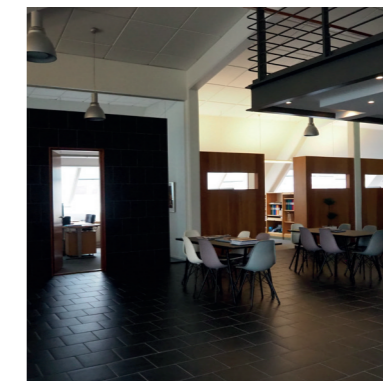
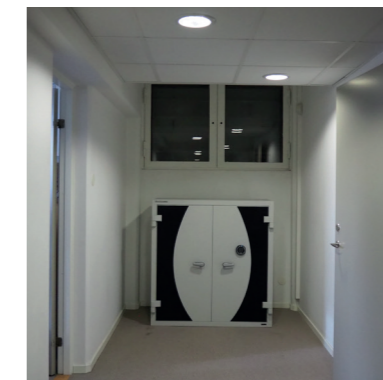
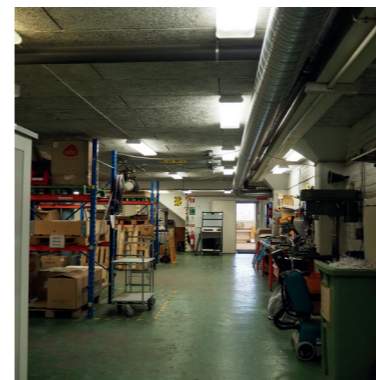
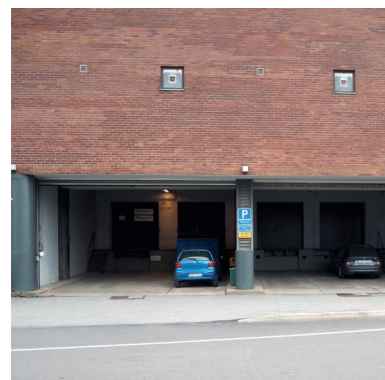
CONCLUSIONS

The facade materiality and especially the diverse window openings could be perceived as slightly mismatched. The openings and the facade material, in particular the north-east facade, should be taken into consideration in the future design. The functions are partially not provided with efficient lighting. Regarding a shift in use, the building's materiality is a significant aspect that needs to be taken into consideration.

Interior



Exterior



05 | DESIGN PRINCIPLES

In this chapter, the analysis is concluded and results are summarized in the form of design principles. They formulate the approach towards the transformation of the building and were a starting point for first design iterations.

OUTCOME ANALYSIS

The building analysis helped to clarify the present status of the building in terms of physical features that can be incorporated in design considerations. Furthermore, it identified challenges the future design faces concerning the building structure and its surroundings.

The outcome of the analysis are the design principles, which describe the approach towards the building in the further course of the project.

The principles pick up conclusions of the analysis and translate them into approaches.

The first two principles define specifically which physical attributes of the building are framing the further design. The other four principles define how to deal with issues seen with the building based on the analysis and context chapter.

In the following paragraphs, the principles are outlined in more detail and explained with respect to what aspects from the analysis they are based on.

On the basis of the principles a catalog emerged, highlighting possible translations of the principles into first design iterations. The catalog summarizes a few first ideas on how to implement the principles on the building.

Within the catalog, there are several overlaps regarding the principles which the possible translations address. Several translations address for example solutions in regard to the lighting issues currently prevalent in the building.

The next step was to pick a few and start the implementation of them on the project. The implementations were further tested and supported through drawing iteration and 3D studies.

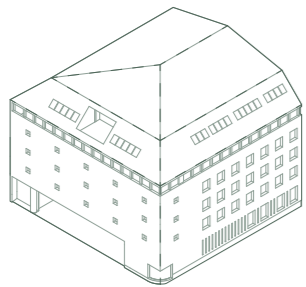
Light is one of the main issues apparent within the building and, therefore, needs to be strongly intertwined with the new program suggested within the design proposal.

The translations were a starting point for the further exploration of the building and possible solutions to solve the issues addressed through the principles.

1

Recover the original building volume.

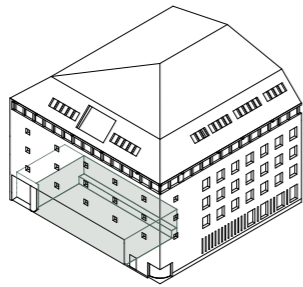
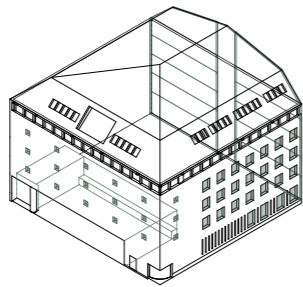
.Create the necessary mediation between the protected buildings within the building block as well as the new development planned in the south.



2

Retrieve and valorize expressions and characteristic elements of the former storage building.

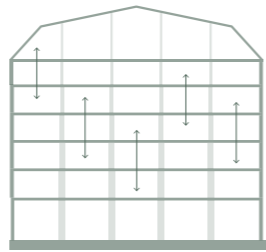
.Possibility to partially maintain and built upon the original expression and the buildings former use



3

Break up the horizontal rigidity within the building and is structural layout.

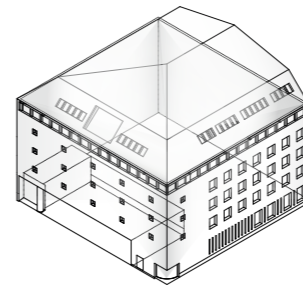
.Within an individual floor the column structure allows for flexibility. In comparison, the sections show the horizontal rigidity that is prevalent in the building



4

Increase the amount of natural light within the building through intentionally placed openings and transformations to the structure, strongly intertwined with the new program.

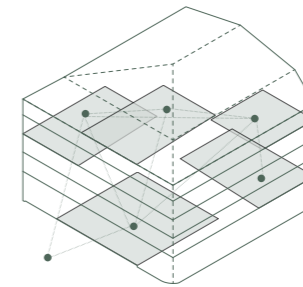
.The facade and structure currently do not ensure sufficient lighting within the building to allow and contain diverse functions



5

Generate a more inviting and stimulating environment with regard to the functions contained within the building.

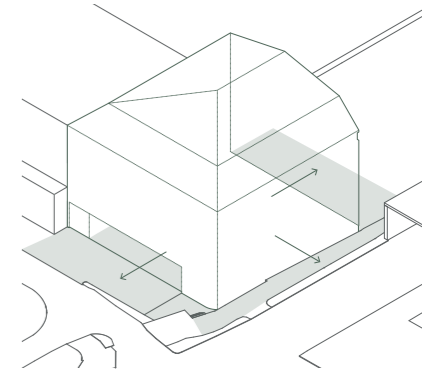
.The functions currently are one-sided; there is no interconnection between them
.A new set of diverse functions is important also with respect to the future development within the area into a mixed-use neighborhood.



6

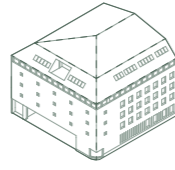
Strengthen the building's connection with its surroundings.

.Important for the necessary mediation between old buildings and new development
.Current functions leave no room for outside environment and the building to interact and create exchange
.The current functions support the building to be introverted

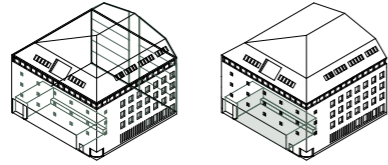


Principles

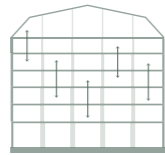
1



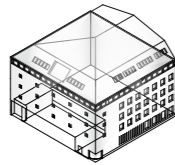
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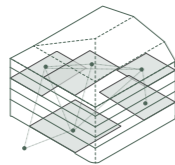
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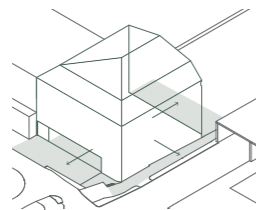
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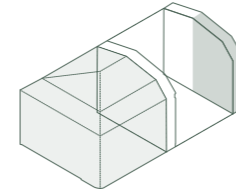
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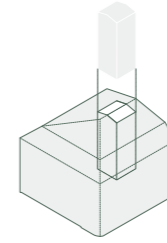
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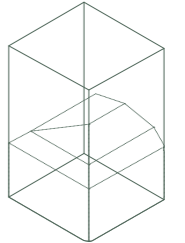
Possible translation



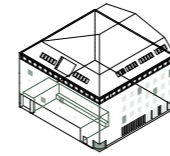
subtraction + addition of building mass



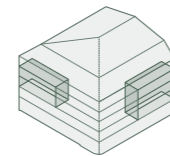
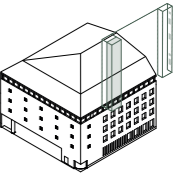
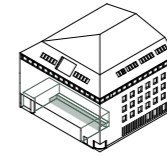
subtraction to building mass



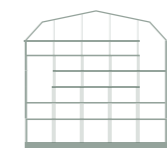
demolition: building new within boundaries



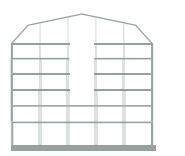
Transformation of the windows, old loading dock and freight elevator, still leave traces of the old characteristics and former modifications



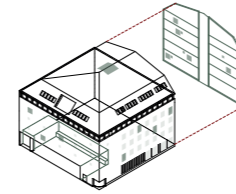
create diversity in the facade



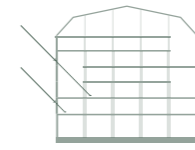
cut outs ceilings



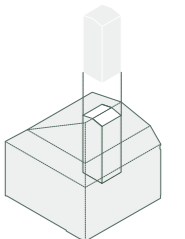
central courtyard | light shaft



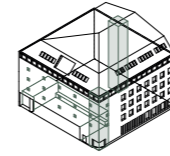
additional openings | extent existing openings



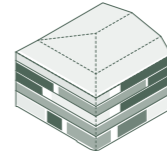
cut outs ceilings



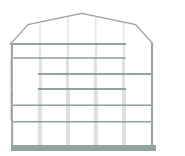
subtraction to building mass



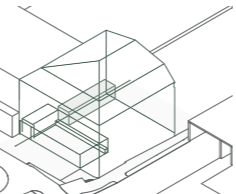
additional staircase



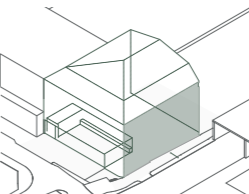
mixed functions with vertical overlaps



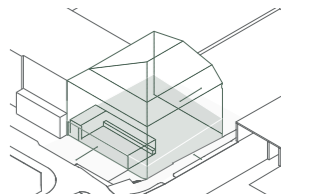
visual connections | space continuum



openings that create visual connections on the ground floor



lower interaction between the building and traffic



public functions on the ground floor that connect to outdoor environment

06 | DESIGN PROPOSAL

The following chapter outlines the design proposal and is the outcome of the theory as well as the analysis.

THE NEW PROGRAM

Due to the building's urban location and with respect to future development in the area of Gullbergsvass, a mixed-use program was implemented within the building.

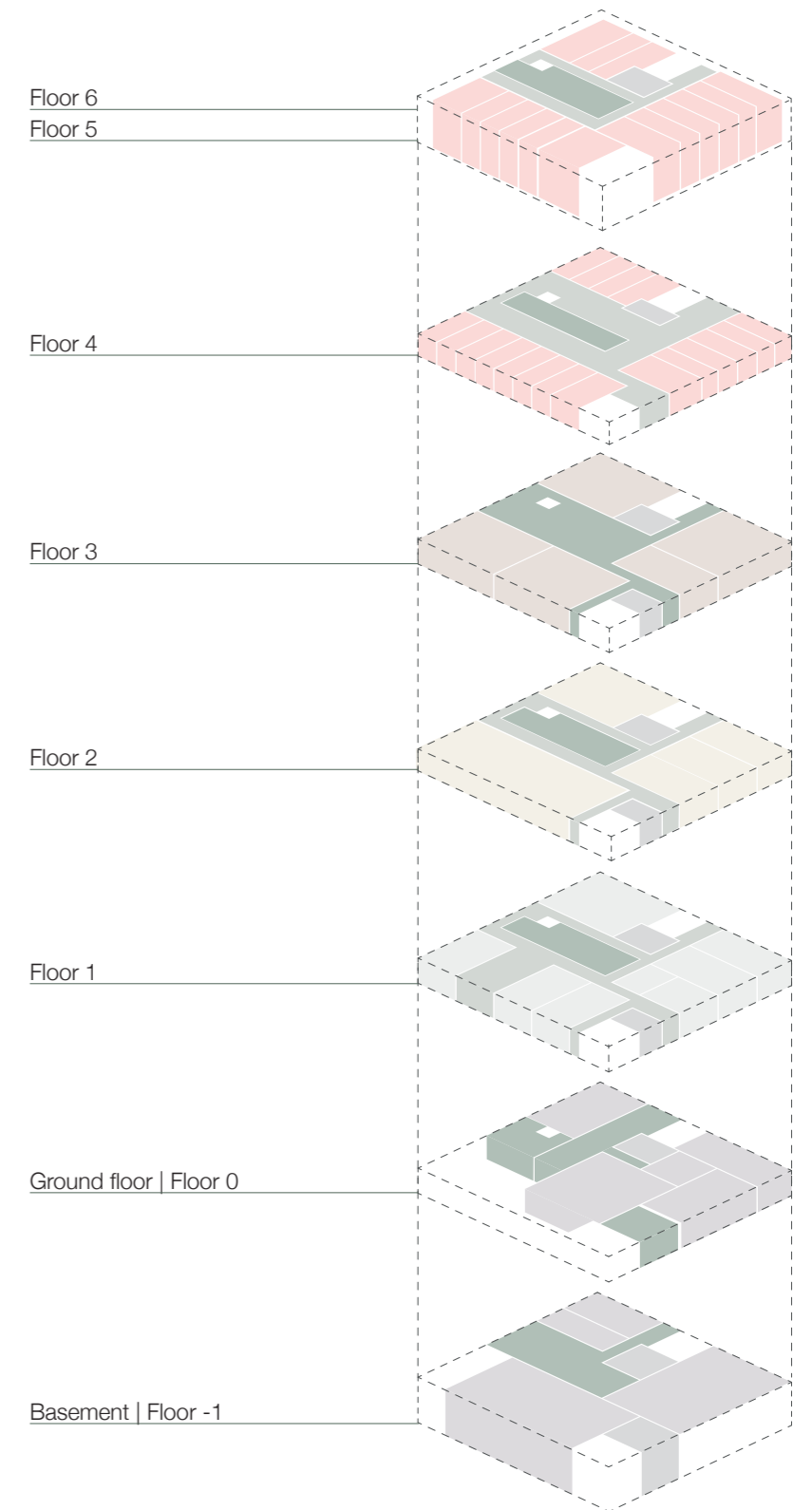
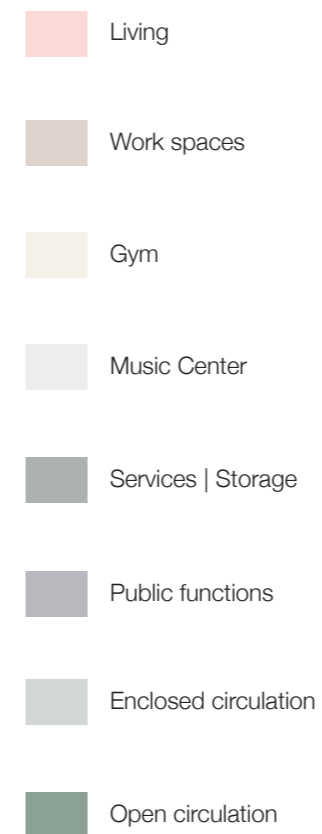
The program is based partially on existing functions (gym and music center).

To create an attractor with the building for the area of Gullbergsvass, the functions focus on providing space for creative purposes, including a focus on different spaces for artists involved in diverse media. From the ground floor upwards, the program becomes progressively more private.

Starting with a public exhibition space, bike repair and café, through music center, gym and co working, the building ends on the fourth and fifth floor with entirely residential units. Due to the building's location and structure, short term living was implemented as a typology, since these typologies allow for smaller private areas and a focus on shared spaces.

To generate the wanted exchange, it was important for the functions to relate to each other across the different stories as well as attracting the external public to make use of the building.

The music center for example can use the event space in the basement as well as having live events in the café space on the ground floor. Another example would be that the people living in the building are able to use the gym while the public may access it as well. In different ways the spaces provide different attracting points.



Axonometry Program distribution | M 1.1000

CONCEPT

The base for the transformation of the former storage building was provided by the existing load bearing column-slab structure.

The overall concept for the transformation of the structure was to maximize the utilization of the existing volume when implementing a new function.

A new open staircase was introduced, which in addition to providing circulation space serves as a light source and zone for social interaction.

The staircase was located centrally, in the darkest space within the building considering the distance to the three facades.

The staircase as an implementation breaks up the horizontal rigidity existent in the building today, through enabling visual connections of different activities on different levels. The staircase is divided into two zone.

One zone, Zone A, contains the staircase and central arrival plateaus. The other zone, Zone B, serves as a zone for social interaction.

The function and degree of privacy it requires define if Zone B is either enclosed as part of the function or open towards the staircase, serving as a balcony.

As a result of the positioning of the staircase, more equal depths towards the facade were created.

Due to its centrality it also allows for visual connections between the different floors, independent of it being enclosed or open.

Beside the open staircase, a second “compact” staircase was introduced within the bracing structure of the former freight elevator. Service zones were added next to the existing staircase and the “compact” staircase, containing sanitary rooms or storage, depending on the function.

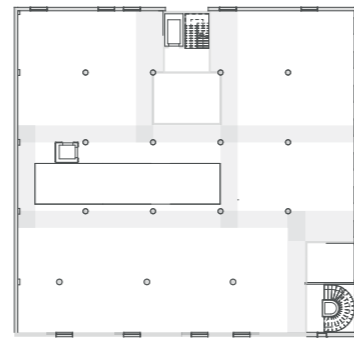
A corridor grid spans between the staircases, defining clear areas -compartments- towards the facade, which provide the basis for the layout of the new functions.

The corridors enable the use of the building’s structure as efficiently as possible.

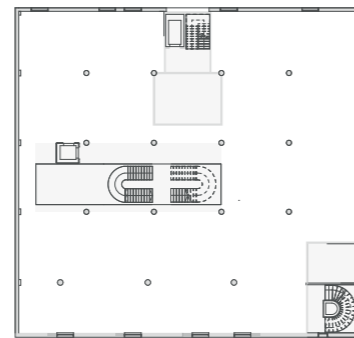
They can be configured according to the needs and uses of each function.

Towards the facade, the corridors end in “pockets”, again creating spaces for interaction as opposed to walking towards a dead end.

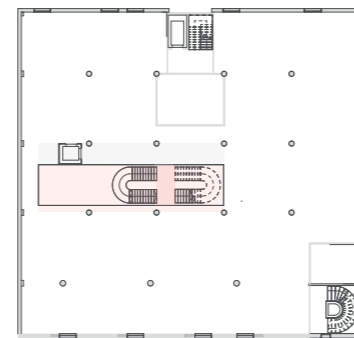
The combination of staircase, corridor grid and compartments further leaves room for future adaptability regarding the functions contained within the building.



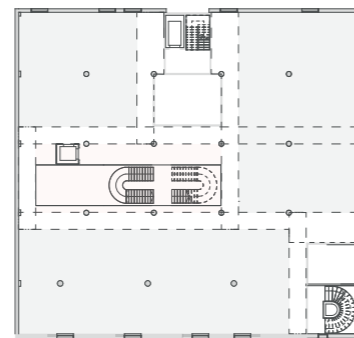
Corridor grid



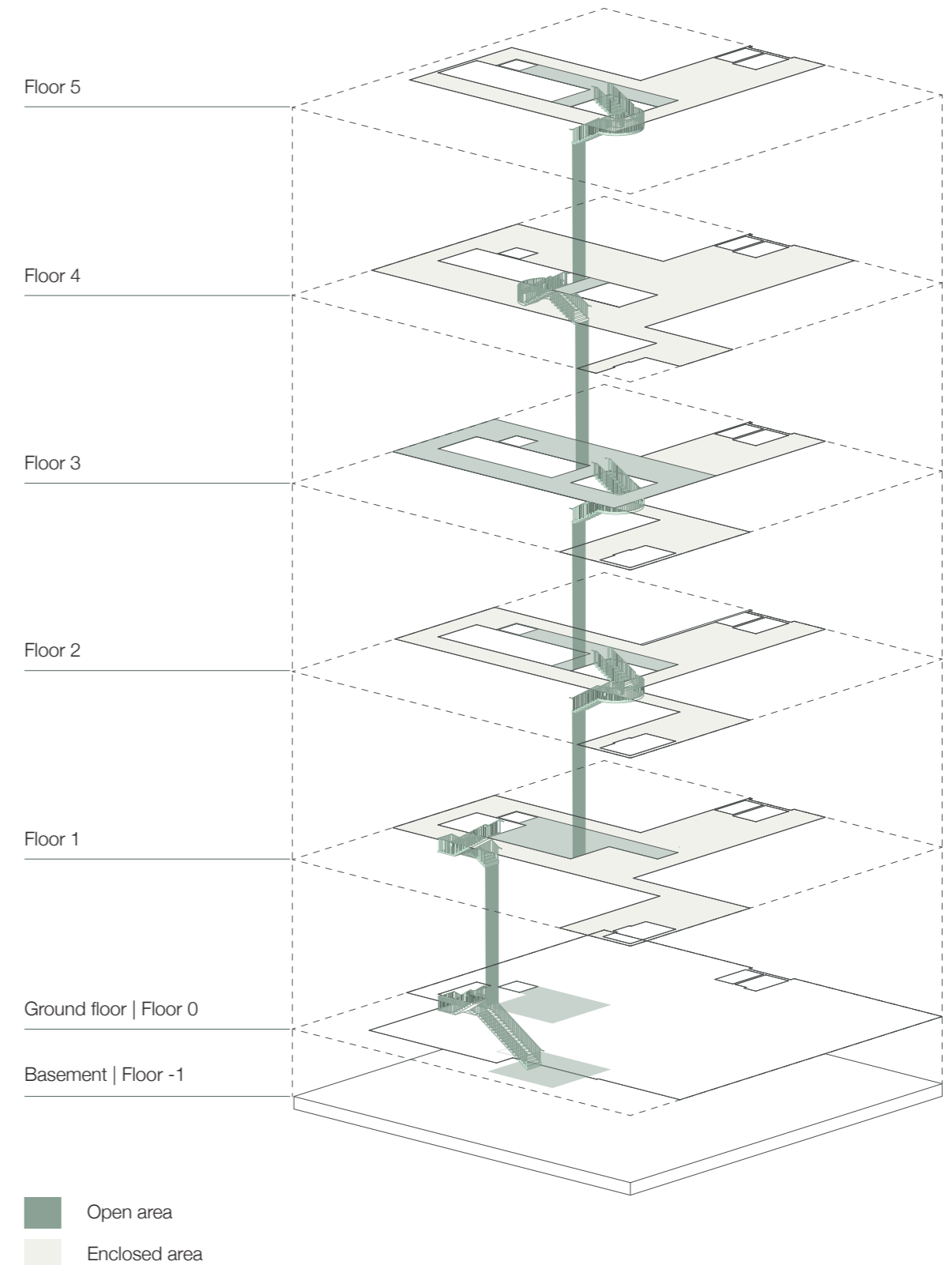
Circulation



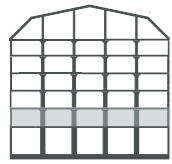
Central Staircase- Zone A | Zone B



Compartments



Axonometry Internal circulation | 1.500



**EXTERIOR |
PUBLIC GROUND FLOOR**

The concept for the ground floor was to establish functions that would invite the public to engage with the building more openly and with less threshold and to open up the building towards its surroundings.

The outdoor space towards Kämpegatan has been re-planned to bring back visibility to the corner of the building and define the space more clearly. The redesign also gives more quality of stay to the space. In addition, the materiality of the ground has been changed to be more consistent and to stress the impression of a small square. Greenery has been added to create a buffer zone towards the adjacent roads.

An open “cold” passage was created through the building, which allows the use of the building as a walkway as opposed to the path along the noisy road. The existing loading dock has been extended outwards and elongates the passage towards the created square.

From the passage the café, the central staircase and a flexibly programmed exhibition and retail are accessed.

The café was placed towards the square and at the corner to leave the possibility of activities and functions to be extended onto the square. Thus, creating a visual indicator that public activities are taking place.

The extended loading dock is partially occupied by the café and provides covered seating space.

In addition, it can serve as a stage for events for the music center.

A bike repair was placed on the north-east facade, in close proximity to the café and the existing bike path along the road of M. Krakowgatan.

The “compact staircase” as well as the former main staircase are now used for staff to enter the building directly.

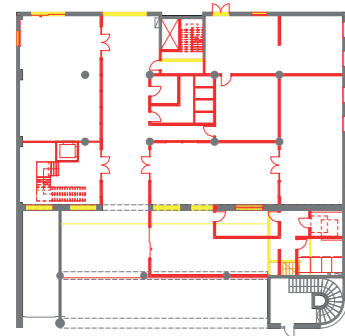


Diagram | Demolition plan

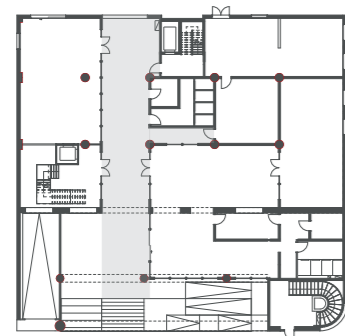


Diagram | Corridors

- 1 Café | Bar | Reception
- 2 Flexible meeting room
- 3 Bike Repair
- 4 Bike Storage
- 5 Flexible Exhibition | Retail space



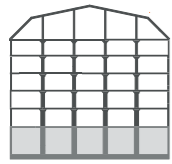
Site plan | M 1.250



Exterior perspective | Entrance



Interior perspective | Passage



THE BASEMENT | EVENT SPACE

The space in the basement is reached through the main internal circulation on the ground floor, from where one arrives in a spacious entrance area. From the centrally located reception area the bigger rooms are reached. The basement provides space for different events. They can for example relate to the existing music center or serve as an exhibition space for artists that work within the building to exhibit their projects. In addition, it contains storage rooms.

- 1 Gathering area
- 2 Cloakroom
- 3 Storage
- 4 Flexible event space I
- 5 Flexible event space II
- 6 Storage

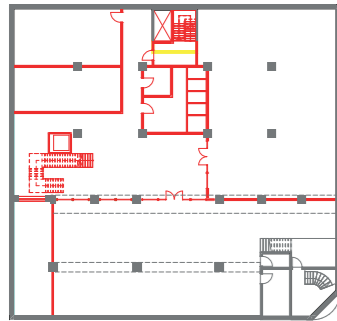


Diagram | Demolition plan

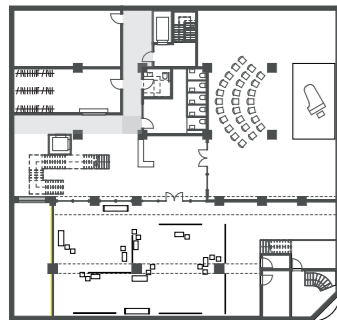
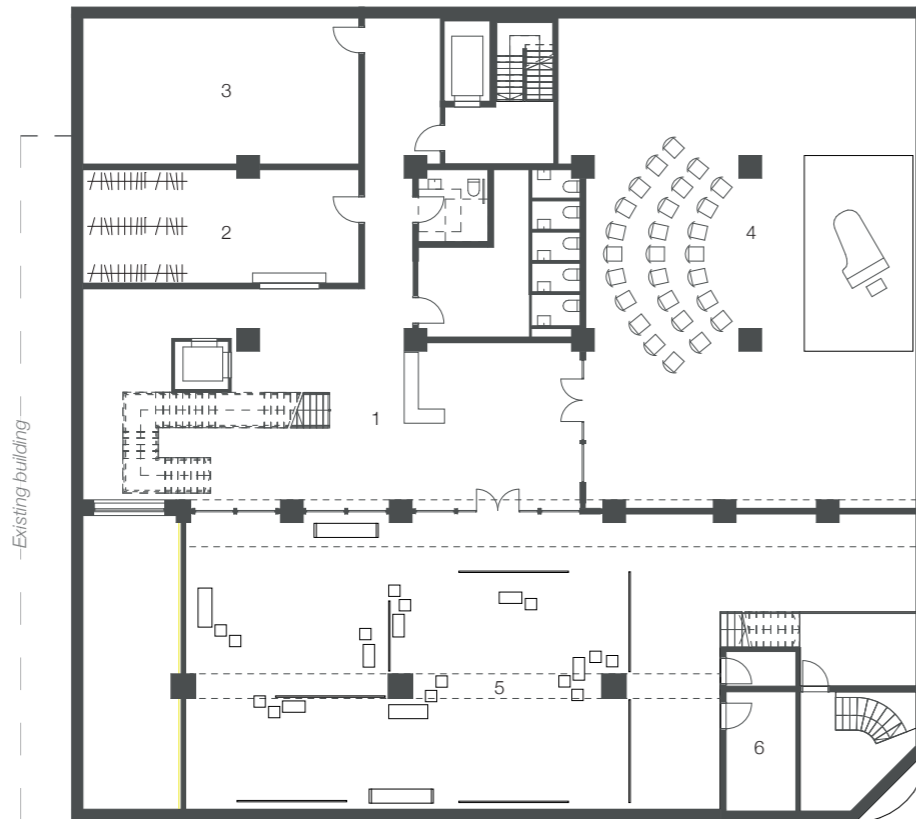
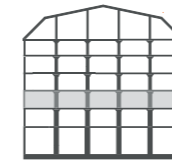


Diagram | Corridors



Basement | M 1.250



MUSIC CENTER

The music center was, apart from the gym, one of the functions kept from the former uses within the building.

The layout for the music center follows the corridor grid around the central circulation. Zone B is part of the staircase. The corridor is enclosed as a private circulation for the music center, for it not to disturb or be disturbed by other activities.

Seating is located centrally within the staircase as a waiting area.

This floor contains a reception area, a small administration office and break areas as well as several different practice rooms. The rooms are equipped for different genres and are diverse in size. Several rooms can be rented by groups to use their own equipment in.

In addition, a flexible room exists to host bigger music events. As mentioned before, the basement as well as the ground floor also offer space and can be made use of.

- 1 Entrance | Break area
- 2 Studios
- 3 Rentable studios
- 4 Practice Rooms
- 5 Administration
- 6 Flexible room

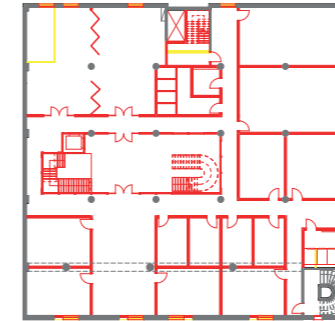


Diagram | Demolition plan

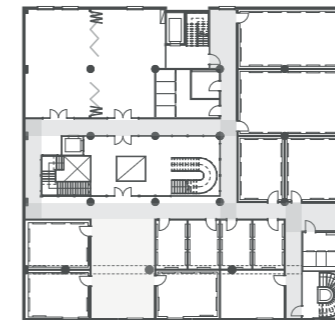
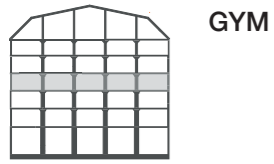


Diagram | Corridors



Floor 1 | M 1.250



GYM

The gym as a function has also been kept from the former use.

The corridor is again enclosed within the function of the gym. Zone B serves as an interior balcony on this floor.

The gym is accessed through a reception area, which leads to the changing rooms and all other functions. The gym contains different workout areas as well as a group fitness room.

The gym is a valuable asset for the building, since residents living in the building have access to it as well as external users coming in, thus creating a base to support exchange and interaction- within the building, but also as a reaction to its surroundings.

- 1 Reception | Lounge
- 2 Changing rooms
- 3 Staff area
- 4 Group fitness room
- 5 Machine strength area

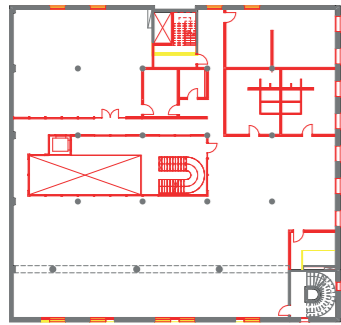


Diagram | Demolition plan

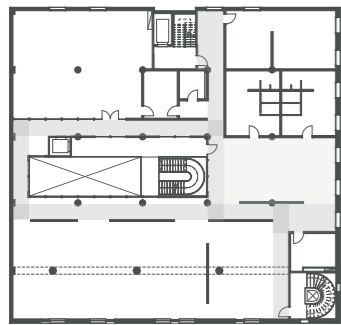
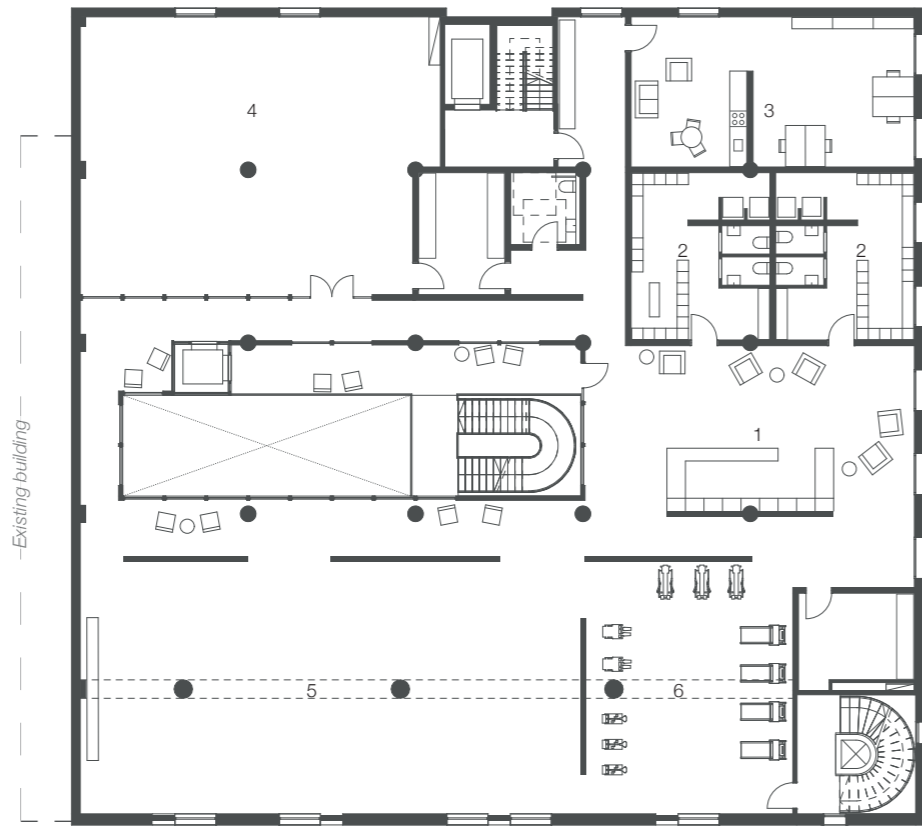


Diagram | Corridors



Floor 2 | M 1.250



WORKING

Within the “work” floor, the corridor around the staircase was not enclosed. Corridor and Zone B melt into one providing a greater amount of open shared space and seating areas around it. Thus providing more space for social interaction.

This floor contains co-working spaces of different sizes as well as a variety of smaller artist studios, which can be rented. The artist studios were configured flexibly within a bigger compartment and can be adjusted depending on users needs, thus allowing artists from different fields to use the spaces. The spaces can be used by temporary residents or external users.

- 1 Co-Working spaces
- 2 shared artist studios

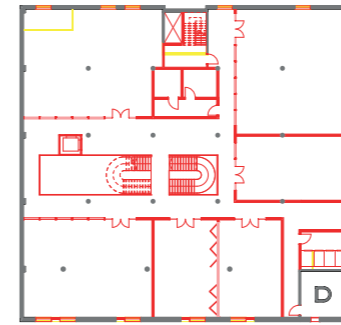


Diagram | Demolition plan

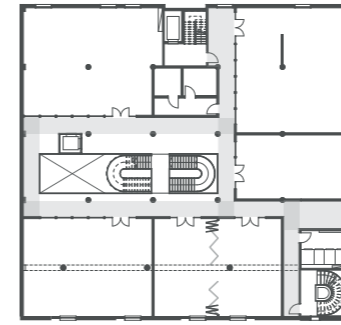
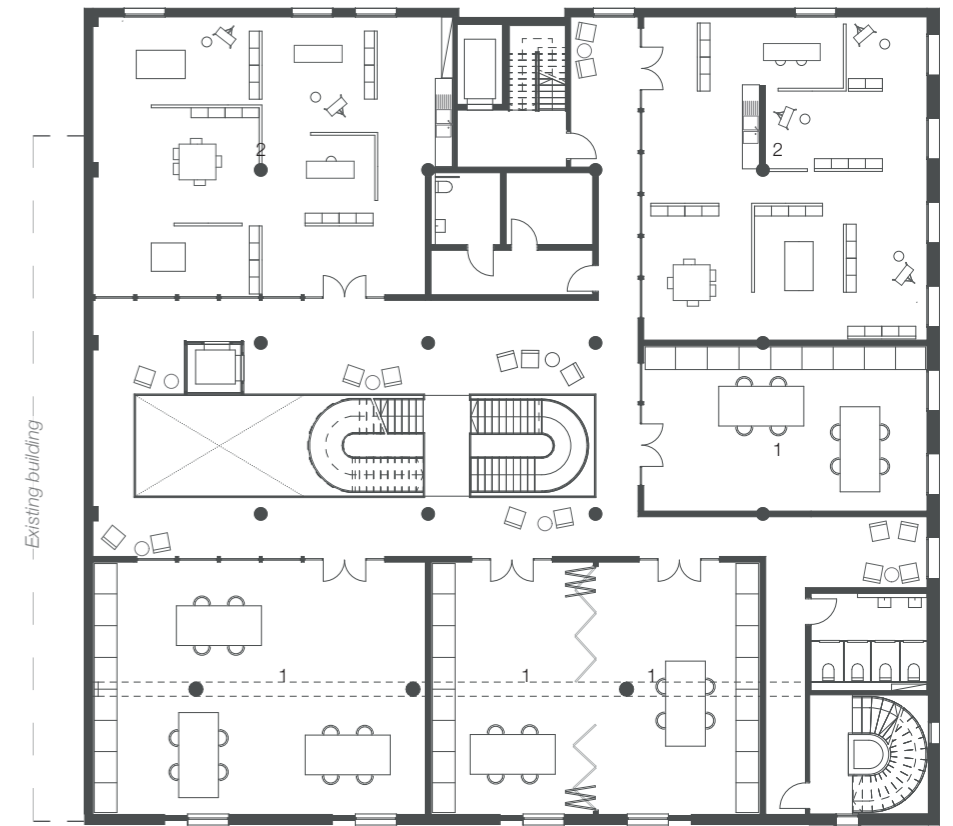
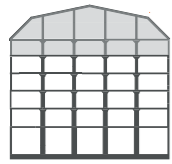


Diagram | Corridors



Floor 3 | M 1.250



LIVING

The concept for the living space again follows the circulation corridors. The resulting areas towards the facade as well as the existing column grid determined the orientation as well as dimension of the apartments. Different apartments are created on the fourth and fifth floor. The program is designed for different users, though always for short term and temporary living. The building contains 33 apartments.

FOURTH FLOOR

The staircase and Zone B are completely enclosed on the fourth floor, due to the need for privacy. Shared kitchen spaces are located adjacent to the staircase. Common living rooms are located in the aforementioned "pockets" towards the facade.

Circulation and shared spaces become one. The fourth floor accommodates short term living, with small private spaces that are hotel room-like. Two accessible apartments are located on the fourth floor.

FIFTH FLOOR

The fifth floor accommodates temporary housing, offering stays longer than in a hotel, but shorter than a rental contract. The apartments are mezzanine apartments, due to the location underneath the roof. The corridor is enclosed, Zone B is again open towards the staircase, serving as an interior balcony. The apartments have individual smaller kitchens. A common kitchen is located close to the staircase.

- 1 Apartment
- 2 Shared Kitchen | Common space
- 3 Laundry

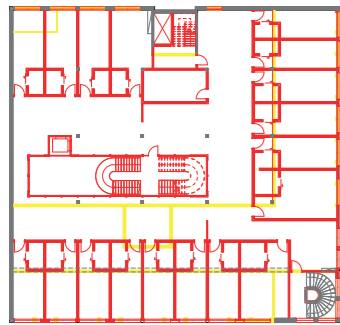


Diagram | Demolition plan

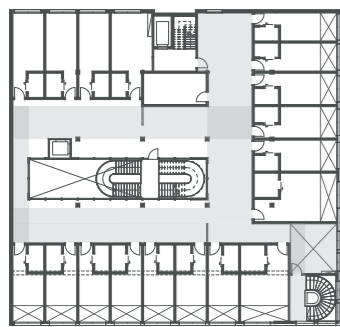
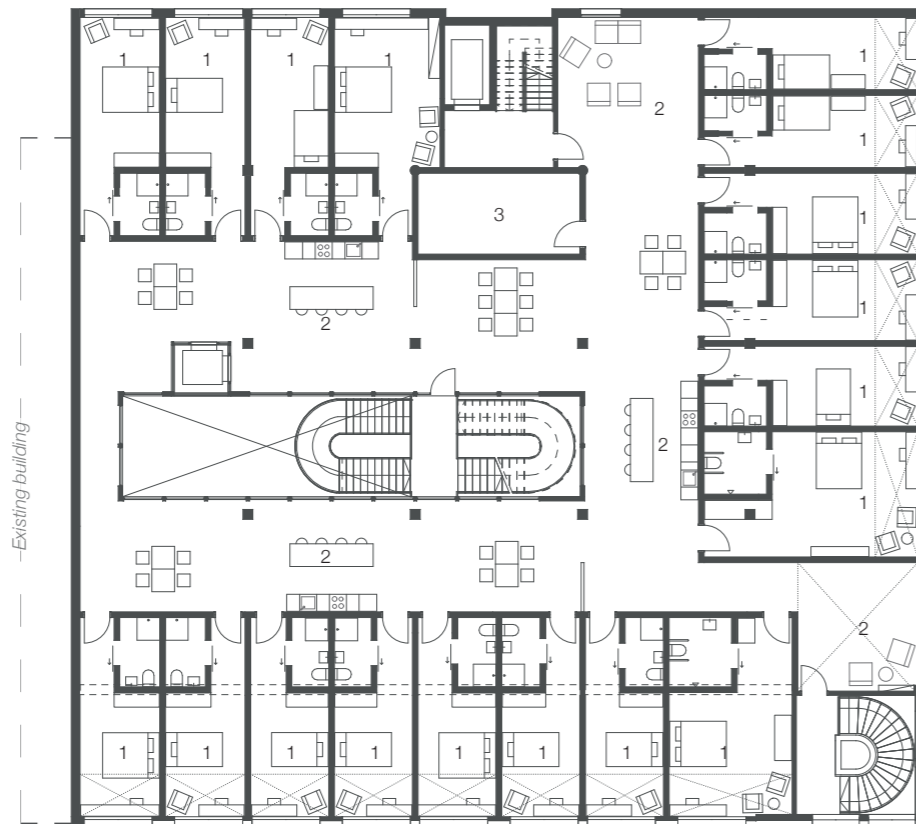


Diagram | Corridors



Floor 4 | M 1.250

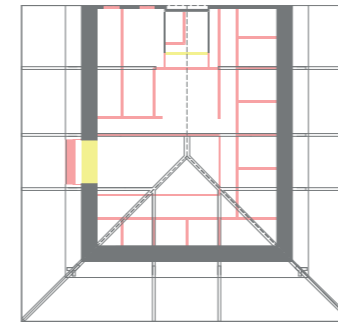


Diagram | Demolition plan

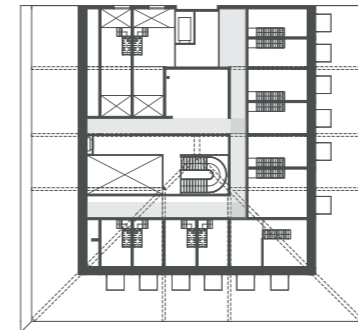


Diagram | Corridors

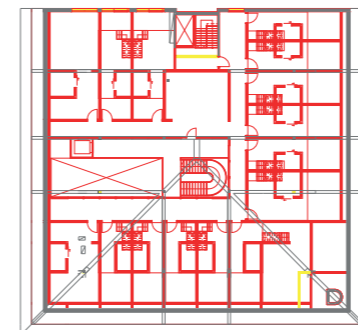


Diagram | Demolition plan

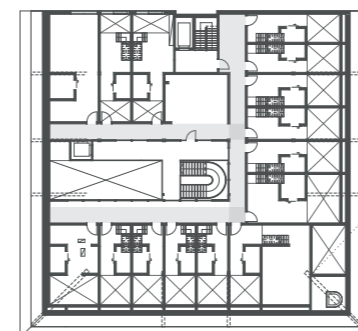
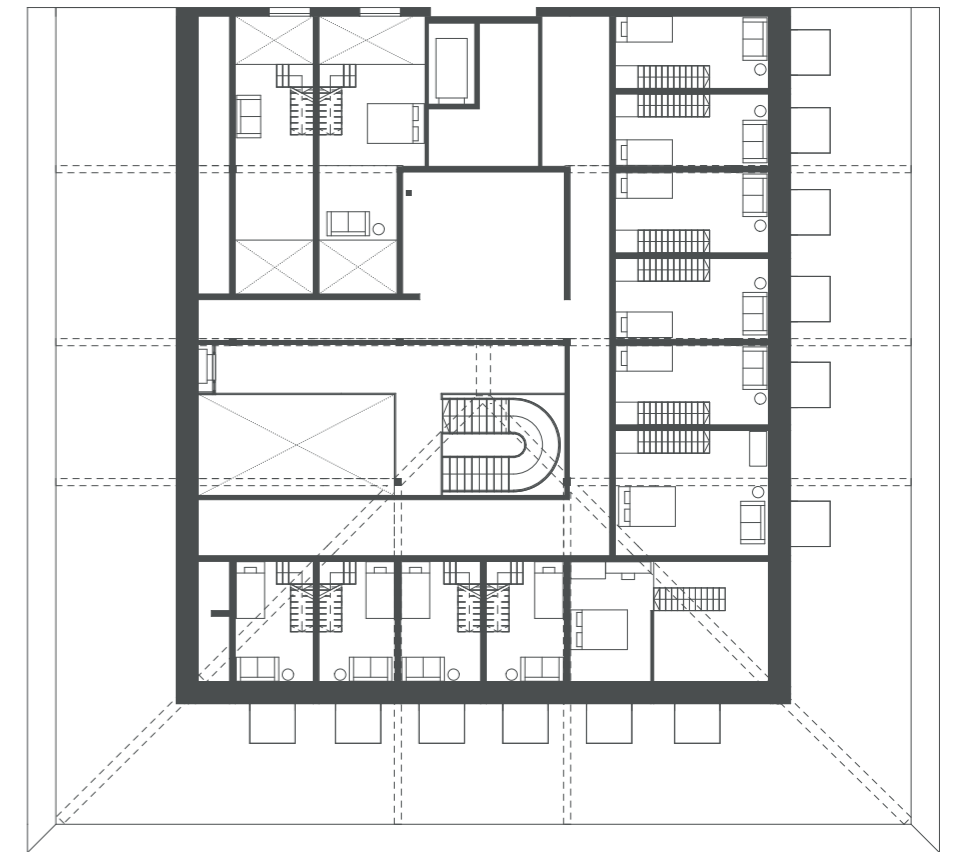
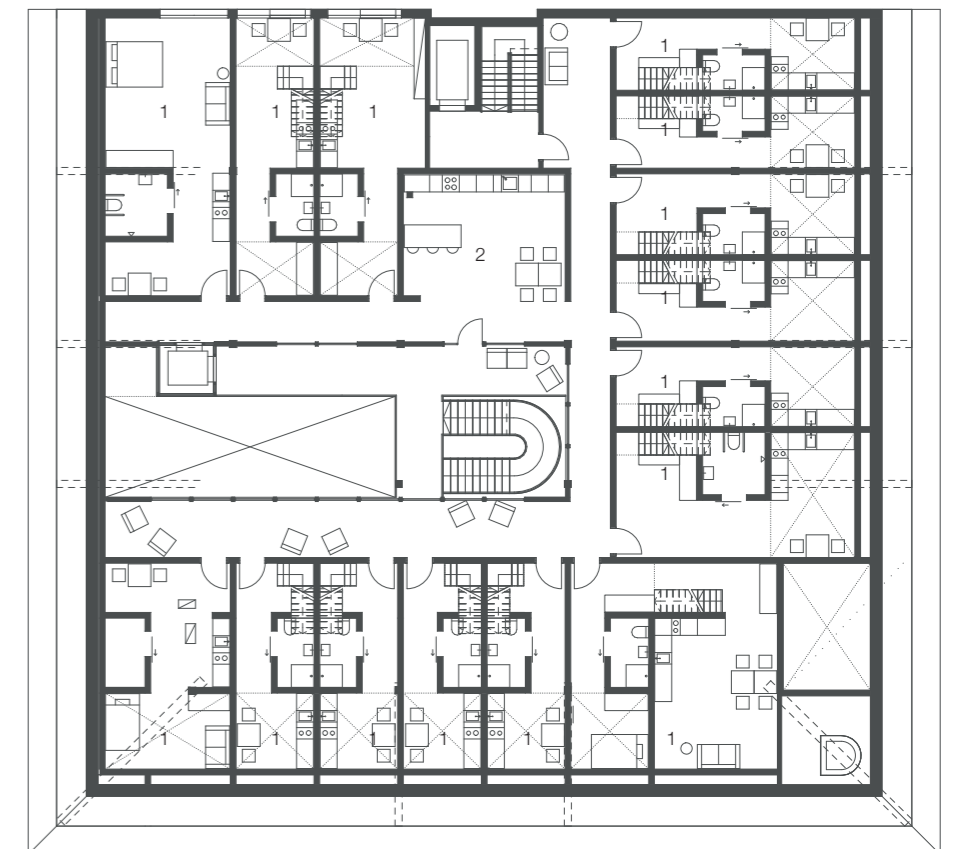


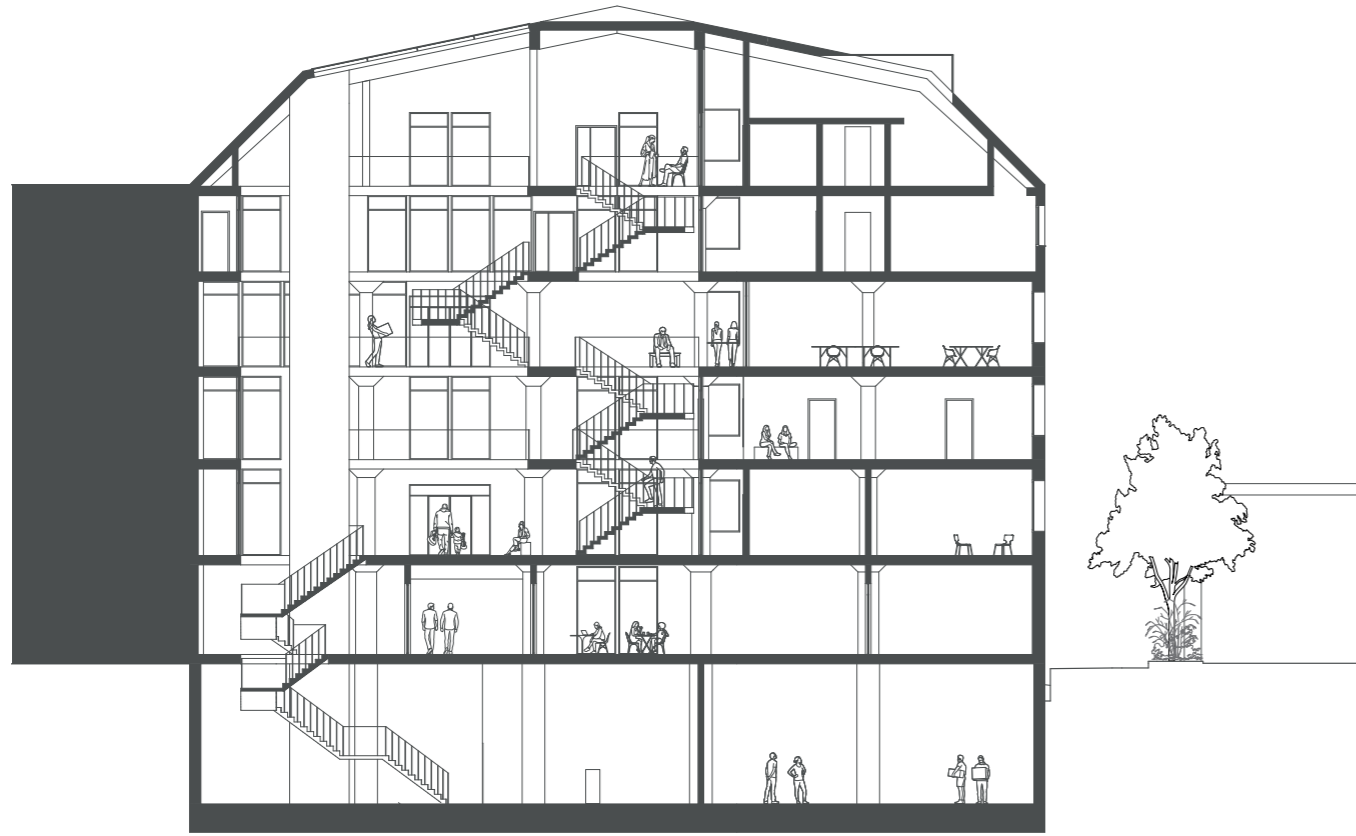
Diagram | Corridors



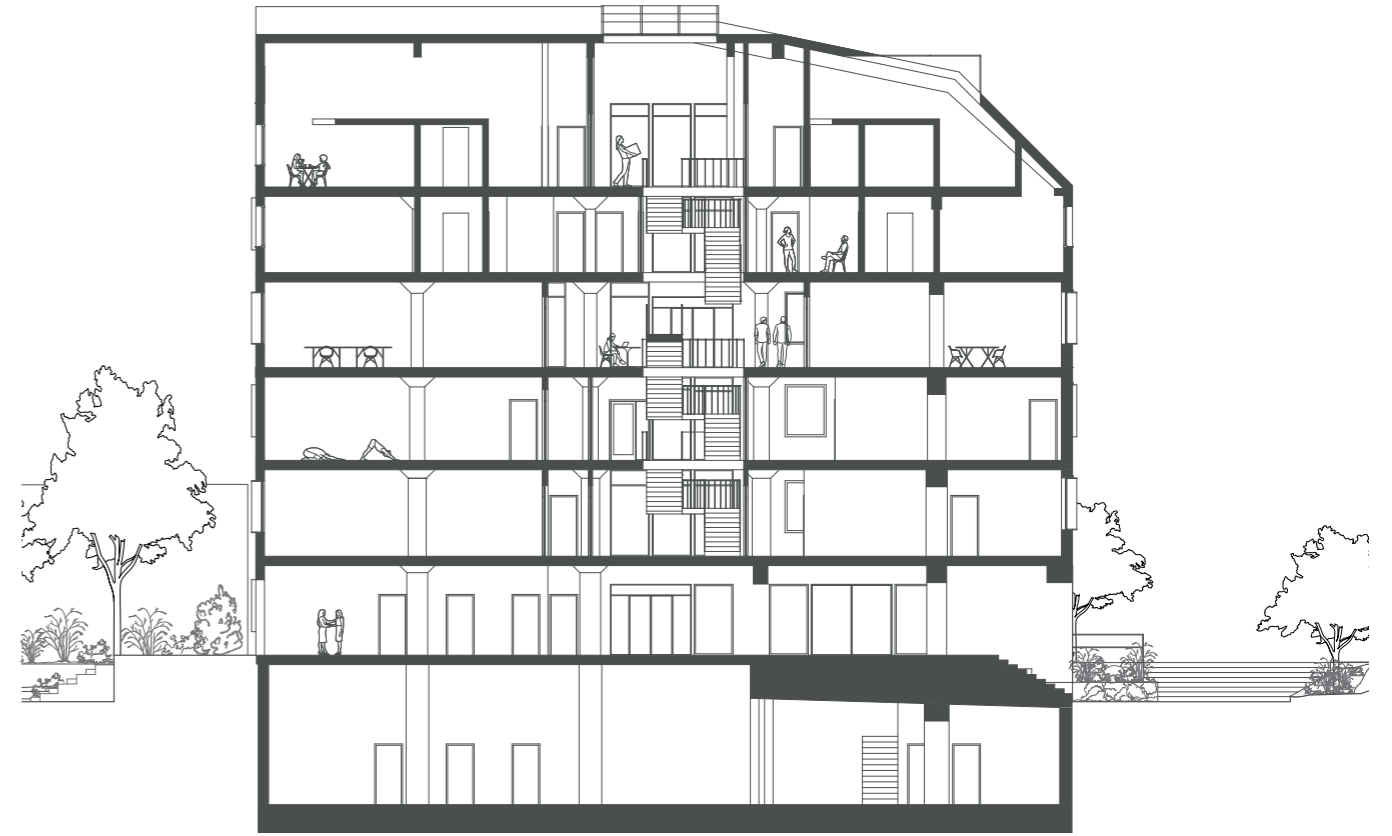
Floor 6 | M 1.250



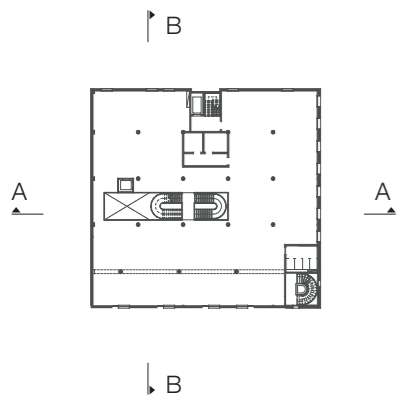
Floor 5 | M 1.250



Section AA | M 1.250



Section BB | M 1.250



FACADE

Since the facade has already undergone several changes, the size and quantity of openings on the different facades vary significantly.

The concept for the facade was to work with existing openings where possible and to bring more organization to the facade.

The predominant, existing opening format on the south-east facade was adopted as the new standard opening format and referenced on all other facades.

SOUTH-EAST FACADE

The existing openings were preserved and the windows were exchanged.

The window band on the fourth floor was preserved as a visual. Since the height of the parapet is currently more than one meter high, the window openings were slightly lowered. Since walls were added inside, parts of the facade will also be closed, covered with red pigmented plaster and slightly recessed to, as mentioned before, keep the visual feature of a continuous band.

Where the former main staircase is located, the small openings were also retained and replaced with new windows. Due to the implemented apartments under the roof, dormer windows were added.

SOUTH-WEST FACADE

The south-west facade was handled similar to the south-east facade. The small openings were retained and dormer windows were added as well. The band on the fourth floor was treated equally as explained for the south-east facade.

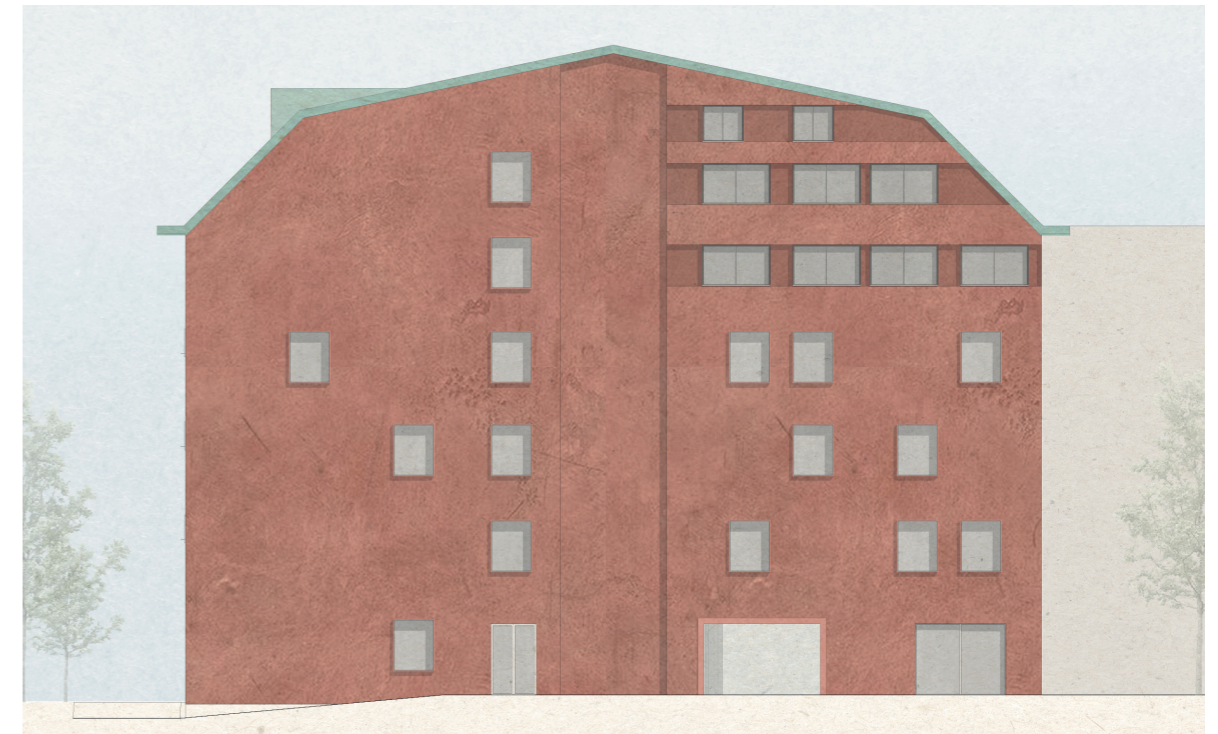
The former small openings were closed and similar to the window band on the fourth floor now appear as recesses in the facade, covered in red plaster. New openings were added in the size of the aforementioned new adapted standard format.

NORTH-EAST FACADE

On the north-east facade, which originally did not contain any window openings, the new standard window format was again adopted.

The window band was also adopted on this facade to indicate the residential functions.

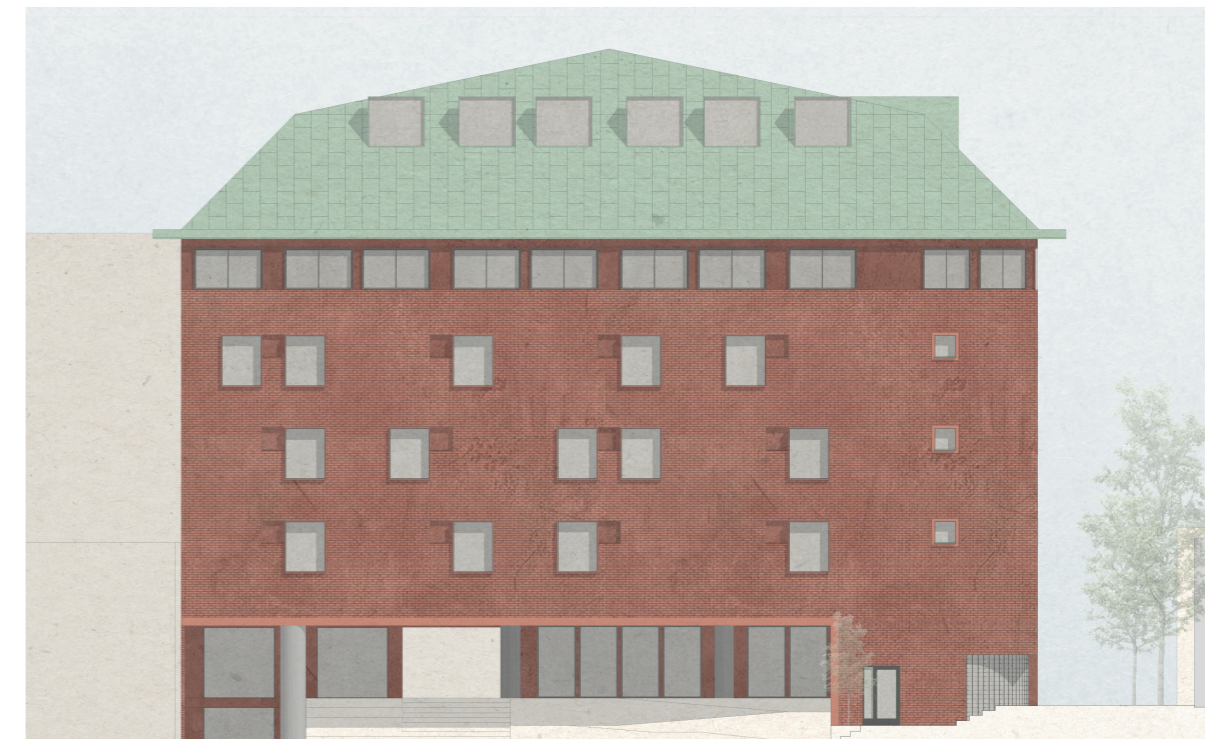
The brick was preserved on the south-east and south-west facade. The aluminum cladding is removed and replaced with red pigmented plaster on the north-east facade. The pigmented plaster was also used to highlight the entrance to the passage.



Elevation North-east | M 1.250



Elevation South-east | M 1.250



Elevation South-west | M 1.250

MATERIALITY

The concept for the interior materiality was to highlight the building's history and its former industrial use as well as to create a coherence throughout the building and provide quality of stay.

The central staircase is more set, grounded and coherent with the existing in contrast to the added walls which consist of a wooden construction.

The wooden construction allows for walls to be deconstructed in the future in case demands regarding the functions within the building change.

The contrast of the existing and staircase to the wooden walls is to make clear which elements will let the building evolve and adapt in the future and what is here to stay.

The cold passage on the ground floor is exposed to diverse weather conditions, therefore the chosen materiality was to appear more robust. The red pigmented plaster draws from the facade through the passage.



Perspective | Passage



Interior perspective | Staircase

07 | DISCUSSION

The aim of the thesis was to explore how a mixed-use program can be implemented in an existing building, which comes with specific architectural and spatial prerequisites.

The overall purpose was to gain an understanding of the challenges that the transformation of an existing building entails.

The result of literature research, site visits and thorough analysis to gain a deeper understanding of the building and its context, was a transformation proposal for a former storage building.

The design proposal was a suggestion for the building at Kämpegatan 16, to overall make use of existing resources within the cityscape. Further the design provides the building with new, diverse functions, to integrate the building better with its surroundings as well as prolong its life cycle.

The theory and analysis provided the backbone of the design principles, which formulated the transformation approach towards the building. The opportunity to go back to the site several times was particularly helpful in understanding the present situation of the building and understanding how the transformation proposal could possibly impact the site. Through the research, analysis, site visits, design iteration and elaboration of the design proposal, challenges regarding the existing building became apparent.

The focus of the design was on exploring and applying a new function onto an existing building to understand the limits and opportunities of an existing structure. The many layers of a transformation project became apparent and helped to further understand thresholds and motivations of demolishing buildings rather than keeping them. The design proposal, which was the result of the combined methods used to work on the thesis project, is one suggestion on how a mixed-use program can be implemented in a former storage building. There are most certainly several other approaches to this building's transformation.

The transformation of a building has many facets and a variety of aspects need to be taken into consideration when working with existing structures. Finding a balance between old and new is very relevant as well as starting early to include light, materiality and atmosphere into the design proposal.

As mentioned before, an existing building presents itself with very distinct spatial and architectural prerequisites, which are unique for each building. It was challenging to work with the existing structure and its limits, especially with regard to the

implementation of a mixed-use program. Different functions have different requirements regarding their privacy, accessibility, supply with direct lighting and access to outdoor space. In combination with the horizontal rigidity and depth of the building, it was challenging to cater to the different needs.

The depth of the building was notably difficult to bypass. Vertical perforations were a way of reducing the floor plan depth as well as to connect the functions with each other. The staircase as a light well was also helpful in reducing the floor plan depth. The initial idea of creating more distributed vertical connections between the floors seemed compromising for the individual functions to take place, and was thus disregarded. The music center and gym both are in need of being enclosed so as to not disturb or be disturbed by other functions. The same logic goes for the residential floors which were to have a controlled access, which consequently is more private.

Within the process of the thesis it became apparent that compromises are inevitable. It has been challenging to integrate the building more successfully with its surroundings and rectify the building's introverted expression.

In particular regarding the future development and exposure of the building towards noise related surroundings.

Since there is a lot of development planned surrounding the building, there were many unknown variables that needed to be bridged with the design. Since the development in the area will not only be limited to constructing new buildings, but also includes re-planning of the roads, possibly raising them, it was difficult to foresee how the building will be influenced and how the design proposal will impact the surroundings.

How can an existing building be transformed as to counteract its possible obsolescence?

Subquestion

How can a mixed-use program be implemented in a former storage building and the building reactivated and reconnected with its surroundings?

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Image references

Figure 1:
Lönnroth, G & Stadsmuseet (1999). En liten del av västra Gullbergsvass ingår i riksintresseområdet "Göteborgs innerstad. Kulturhistoriskt värdefull bebyggelse i göteborg : ett program för bevarande (Vol. 1).

Figure 2: City Planning Office (1964). Gullbergsvass 6 Kv. Bronsen Urban planing map. Detailed plan 1480K-II-3097.

Figure 3: City Planning Office (2004). Plan map Kvarteret Bronsen. Detailes plan 1480K-II4719.

Figure 4: Göteborg Stad, Stadsbyggnadskontoret (2019). The illustration shows the blocks in aerial view from the northeast. Illustration: White Arkitekter. Detaljplan för överdäckning av Götaleden. p.27

Figure 5: Göteborg Stad, Stadsbyggnadskontoret (2019). The illustration describes the overhang (marked with a blue dotted line) allowed on the plan map in Kvarteret Bronsen. Illustration: City Planning Office (2019). Detaljplan för överdäckning av Götaleden p.31

APPENDIX

Blueprints 1964 | Kämpegatan 16 |
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