

Adaptive reuse of a multifunctional coworking hub: Upgrading to contemporary standards



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Abstract

This thesis investigates how an existing multifunctional coworking hub in Stockholm can adapt and improve through functional change to meet new current standards and beyond in our refined digital age.

The process is defined by research and insights collected from it, starting with a site analysis of the building and the community in its context followed by a study on adaptive reuse to structure a framework and set a clear scope for the design development of the building which is substructured with further research and insights in the process to create and achieve the optimal functions and improvement.

The result is a design proposal of the multifunctional coworking hub where the new features have been improved to benefit the local people as a common meeting spot and the coworking spaces as a refined workplace.

Question

How can existing buildings be repurposed and improved to meet new current standards and beyond of multifunctional coworking hubs?

Hypothesis

This thesis proposes that incorporating flexibility increases functional and overall performance of the building.

Table of contents

Introduction	1
I Site Analysis	3
1.1 General, location	5
1.2 Context	7
1.3 Timeline, history	11
1.4 The architecture	13
1.5 The community	15
1.6 Current features and floorplans	19
1.7 Insights I	21
II Adaptive Reuse	23
2.1 Adaptive reuse	25
2.2 Defining the meaning of adaptive reuse	26
2.3 Five components of adaptive reuse in practice and the current global directions	27
2.4 Design strategy	31
2.5 Tactics	33
2.6 Insights II	34
III Design Development	35
3.1 New layout of A-house	37
3.2 Relationship between the elements	39
3.3 Large scale - general improvements and new features	41
3.31 The additional floor	43
3.32 Section drawings	50
3.4 Medium scale - additional features, program, circulation	55
3.41 Hotel & Gym	57
3.42 Programmatic diagram, circulation & functions	59
3.43 User circulation, private/public zones	61
3.5 Small scale - Interior and coworking spaces	63
3.51 Research study	65
3.52 Configurations	71
3.53 Floorplans	73
3.54 Insights III	81
3.6 Discussion & conclusion	83
References	

Delimitations

The question in this thesis is based on a wider socially important issue and tries to find possible theoretical solutions to specific problems. The scope is set to examine the building in question and its solutions to them as an example of how an existing multifunctional coworking hub can adapt to change.

The thesis mainly focuses on improvements of spatial qualities, functional change and its features where the differences of the attributes are thought to make the biggest impact for the end users. No evaluation will be made of the structural elements or building materials although some of the qualities might have an impact of the additional changes and design. Qualitative and quantitative data will be presented and examined to achieve the most suitable approach and proposal.

Method

Site Analysis

A site analysis is carried out to conduct information about the building in its context, history and community. The data will later be used in chapter III “design development” where the attributes of the site and building will be applied to reshape A-house.

Adaptive Reuse

The meaning and definitions of adaptive reuse along with other fundamental terms are researched on to use as a tool to define an angle of approach and develop the building with a design strategy and overall focus for the design development.

Design Development

With the previous insights conducted, a more customized design and improvements can be made to make general enhancements of the building for public use. Further research and analysis will be made to discover and find the most suitable solutions to improve the existing coworking spaces and uplift the experience to benefit the city and community. The outcome of the adaptation is presented in the end with drawings and renders as well as a conclusion and discussion.

Introduction

The pandemic has made a significant impact on the way people work across the world. The shift to remote work has made businesses close their offices and realized that individual offices are not as necessary or profitable as before the pandemic, and many has continued with distance work even though offices re-opened.

Despite this, there has been a rising need of multifunctional coworking spaces in Stockholm as there are many benefits to it. Traditional offices are adapting to become a place for individuals and businesses of knowledge-workers who does not have or need a permanent office space but want somewhere to work whenever it suits them.

A-house, the former KTH School of Architecture, was transformed into to the coworking hub that it is today. The building has however not reached its full potential as I see it since it was not originally intended or designed to operate as a coworking hub.

The opportunity here is to transform the building to a fully developed multifunctional coworking hub to modern standards and beyond where the features are optimized to satisfy the arising need of hybrid workplaces in our cities by repurposing an existing structure, which represent the majority of the built fabric in our cities. With adaptive reuse and planning, buildings can improve to make big impacts in our post-pandemic world.



COURTYARD VIEW

Site Analysis

- 1.1 General, location
- 1.2 Timeline, history & community
- 1.3 Goals and objectives
- 1.4 Methodology
- 1.5 Process

In order to make improvements of the building in question, it is essential to carry out a site analysis that gathers information about the context to understand the current purpose of the buildings existence, how the current features are serving the community and the neighborhood.

With the collected data, more precise decisions and predictions can be made to adapt the building to the goal of this thesis.

1.1 General, location

Coworking hubs in Stockholm

The traditional mindset that work should be done in the office is changed towards a hybrid version. Employers see the value in letting their employees work independently. Office hotels has become popular in cities, and Stockholm is no exception. They typically offer a broad amount of services and opens up for social interactions compared to when working from home or in traditional office environments.

A-house, a relatively big facility where approximately 500 people are circulating the building everyday, is classified as one of the larger office hotels in the district of Östermalm. As seen on the maps to the right, the mid- to large-size office hotels are distributed mainly towards the city central.

Since KTH School of Architecture transformed into A-house in 2015, it has become a popular meeting venue for individuals workers, startups and more developed businesses for the people in Östermalm.

If A-house can improve and enhance its features as a multifunctional hub, it can perhaps activate the immediate area even more and be beneficial to a bigger audience as well as opening up for public use.

A-house

The building is a good example of an 1970's building with a lot of potential as I see it. It is built with high quality materials and is a well designed brutalistic building. As co-working spaces has become a big trend in Stockholm, I see this as a good opportunity to choose to work with. There are currently a lack of these kind of spaces in Östermalm and it consists mostly of residential buildings compared to the other districts in Stockholm.

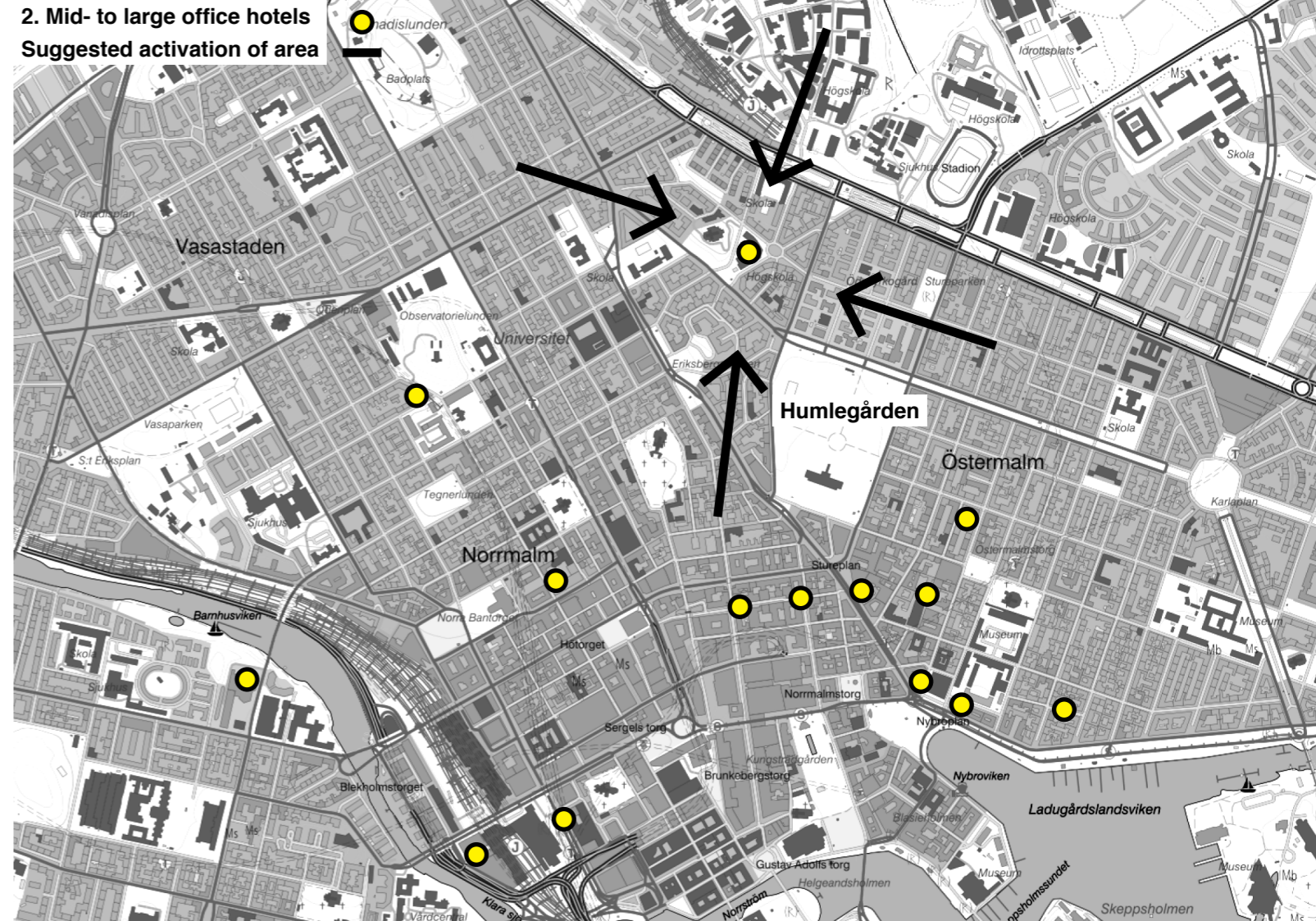
Summary

1. Many traditional workspaces are switching to hybrid version in Stockholm
2. They offer a broad amount of services
3. Most coworking spaces are distributed towards the city central
4. The area in Östermalm can be more activated by improving A-house
5. The building has a lot of potential, is robustly built and can be improved

1. Stockholm City, Östermalm



2. Mid- to large office hotels
Suggested activation of area



Microclimate

The building currently lets in most of the sunlight through the facade facing the west side as seen on picture (2). The areas with the most sun exposure is the courtyard and the flat roof as seen on picture (3). The building avoids overheating with vertical sunshades on the facades facing west (2).

Scale, height

The current scale of the building is quite similar to the surrounding buildings in terms of its fundamental shapes and heights, though it is about a floor shorter in average compared to the surrounding buildings which shows potential to take advantage of the space on the roof without differentiating too much in height with the buildings surrounding A-house.

Views

Picture (5): Views towards recognized buildings from roof height (left to right): Hötorgsskraporna, S:t Johannes church, Norra tornen, Engelbrektskyrkan. The surrounding landmarks and views can be used to structurize the design of the building. A 360 degree view from the roof reaches to landmarks across the city. Potential to add value by connecting the site to surrounding development and landscape.

Character of existing buildings

All buildings in the immediate area are unique in their characteristic shape and have similar massings and orientations. The architecture fits in the cityscape geometrically but differentiates visually and creates a clear contrast instead of continuing the typical early Stockholm's 1900's architectural style. The residential buildings have 4-5 storeys in average.

Any new development of A-house has potential to create its own identity and contrast from the surrounding buildings.

Summary

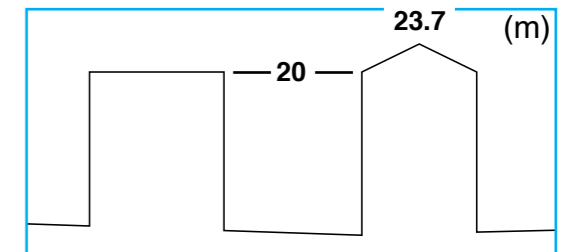
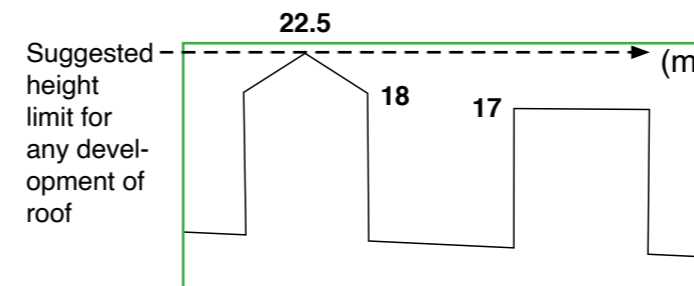
1. The buildings location is good for community and public space
2. Prominent views towards the church and in proximity to a large park area
3. Noise levels should be controlled
4. Courtyard is used for events and activities but there is still space available. Opportunity for enhancements.
5. The coworking hub occupied by creative and innovative businesses
6. Has been voted as "the ugliest building in Sweden" several times
7. Good communication and parking areas makes it easily accessible except there is only one main entrance
8. A lot of sun exposure on the courtyard and the roof
9. The height of the building is about a floor shorter than the surrounding buildings
10. Views to landmarks from roof height, potential to add value by adding a floor
11. The buildings massing fits in the area but differs stylistically



Avg. morning sun
Height differences North & South

Avg. Noon sun
Facade with most sun exposure

Avg. Afternoon sun
Area with most sun exposure
Area with least sun exposure



5. View



6. Surrounding



1.3 Timeline, history

County cell prison 1897-1924

Designed like a middle age fort and used as a women's prison. Intentionally created to be used as a county jail and was later closed down 1924. It was built in the 12.000 sqm neighbourhood Domherren 1, in Stockholm, Sweden. The National Archives later used it as a depot and left the building in the 1960's. The county cell prison got demolished in 1968 (Stockholm, 2018).

KTH School of Architecture 1967-1970

The design process for a new architecture school started around 1965 and was planned by architect Gunnar Henriksson and was assisted by John Olsson who was an architect and artist. The new city plan was created in 1967 for the neighbourhood, a year before the county jail got demolished. The building was completed and ready to use in 1970. In 2007, the KTH management decided for the architecture section to move back to the university's campus area, to gather all the KTH sections in one neighbourhood. Tham Videgård Architects won the competition that was held. A few years later in 2013 the construction began and was finished in 2015. It is positioned right next to KTH's main building.

The old A-house building was later threatened to get demolished as it had bad reputations at the time (Stockholm, 2018). In May 2011, a fire broke out and damaged the majority of studio and workshops towards the courtyard. The damaged parts had to be demolished and rebuilt. The Stockholm city museum examined and made a cultural-historical valuation and concluded that the valuation classifies as a building monument which is the highest classification a building can get in Sweden (Stockholm, 2018).

In 2018, the KTH management converted the building into a business hub and is still functioning in 2022. The peculiar architecture and cultural-historical value is seen as an asset and is therefore embraced by the management for any tenant to use and embrace. Space for markets, conference and restaurants was also planned for the ground floor in order to open up to the public and enrich the city life in the immediate area (Stockholm, 2018).

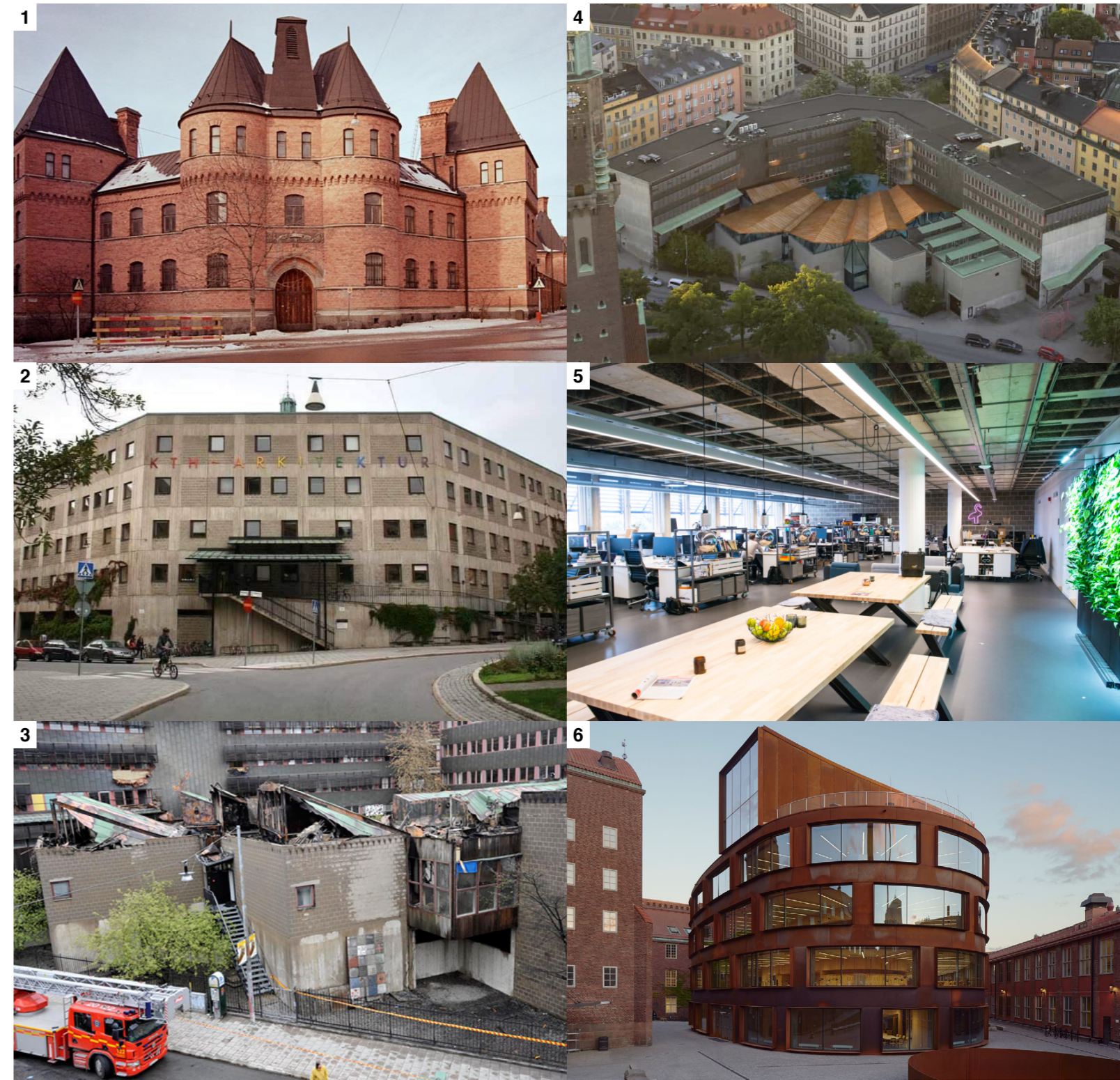
KTH School of Architecture A-house 2015-2018

The building gets sold to property developer Balder and transformed during 2018 in association with Akademiska hus and became a successful meeting venue for entrepreneurs in the fashion, food, music and media sector. It contains a combination of co-working spaces and event spaces (fastighetsvärlden, 2019).

A-wing extention 2015-

2kb architects works with an addition of 870 sqm to the building. The old studios and workshops on the west side is transforming into more open office spaces, film studios and auditoriums in addition to the A-house community program commissioned by the property owners Balder in association with Akademiska hus (fastighetsvärlden, 2019).

1. Country cell prison
2. KTH School of Architecture
3. Fire accident
4. A-wing extention
5. A-house business hotel
6. New KTH School of Architecture building



1.4 The architecture

The design of the A-house and the disposition of the volumes, floor plan and room functions are well thought out and executed. The concrete material in the facades are carefully chosen, the loose interior with movable drawing tables and screen walls characterizes the building throughout and much care has been taken to make it fit into the cityscape. Even though all drawing rooms, auditoriums, workshops and laboratories are well planned it was strictly planned with a very limited budget (Stockholm, 2018).

At the same time, the building would pursue simplicity and minimalism in mind. The architects building was intentionally designed not to appear more exclusive than any of the other departments at KTH, which I personally think the architect really succeeded with. During the construction work many details like awings, suspended ceiling and colors were canceled from the plan which ended up making the building even more simplistic which refined the architecture even more.

Stylistically, the architecture is from the 1960's modernism period which is known as the brutalistic era. It refers to the French term "béton brut" which was widely used by the architect Le Corbusier, and describes the concrete as "raw", meaning that the concrete appears exposed on facades when the tree mold has been removed.

Brutalism has also come to be known and associated with a kind of recklessness which today is a common categorization of typical voluminous and boxy shapes. The term was originally developed in Great Britain during the 1960's where it often shaped university buildings. The term "neo-brutalism" came to a more widely known definition of the architectural style during 1966 (Stockholm, 2018). Brutalism often shows the raw material, construction and technique rather than accentuating colors and decorations.

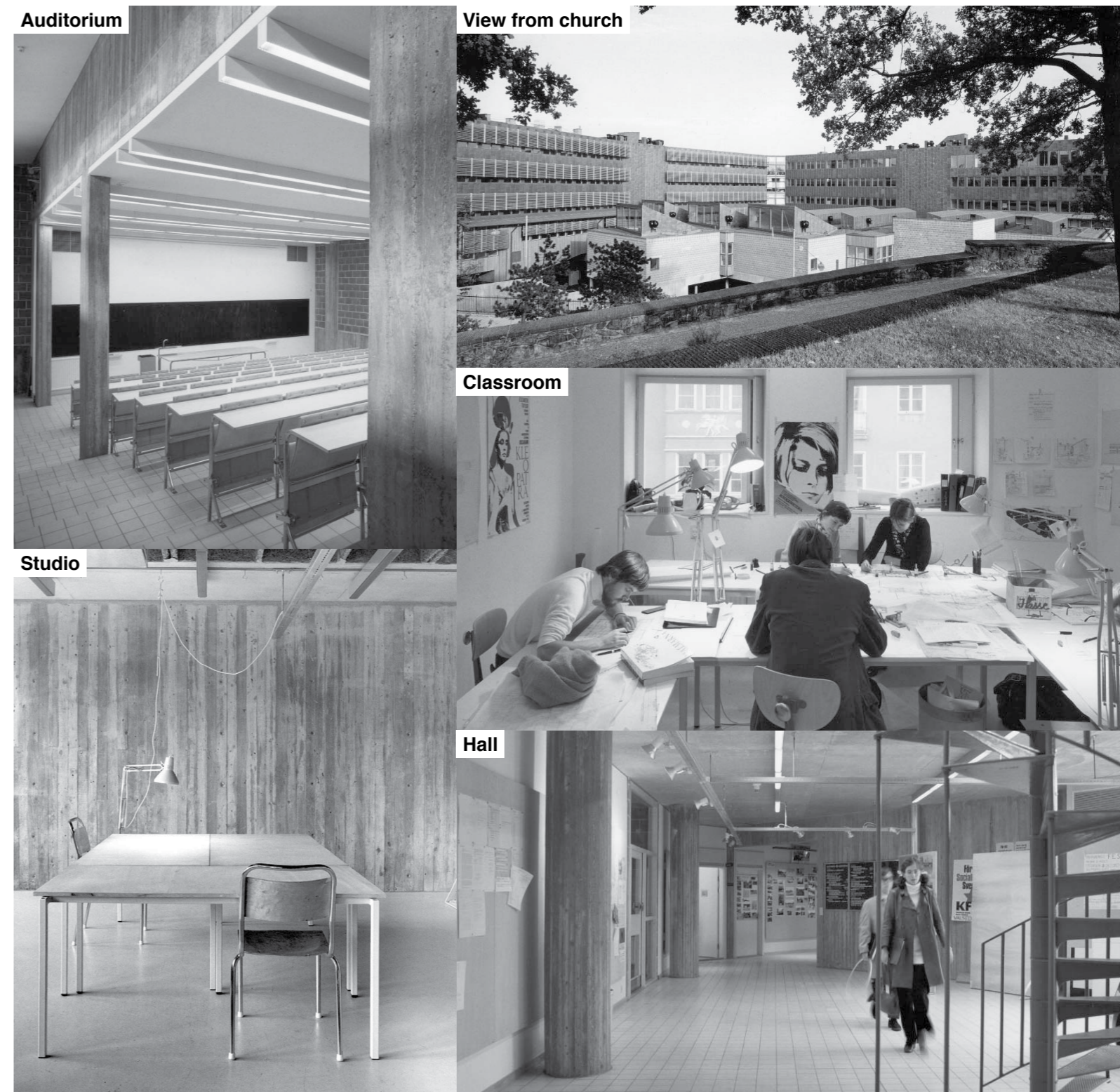
Traditionally, the KTH department facades are made of dark brown tile. Since the architecture school is positioned outside the campus area, the architects chose not to use tile and thought it should not be a part of it stylistically. The facade of the architecture school is partly made of stone covered bricks where the load-bearing exterior walls are. The architect chose the material out of respect for the Engelbrekt church towards the courtyard, otherwise the building would face too much "competition" in the cityscape against the church. The facade should also deviate from the surrounding plastered residential buildings.

When the city plan was defined in 1967 the design of the building was already finished. About 100 parking spaces were planned in but the architects had to raise the garage to ground level which is why the actual ground floor is one level up. As a solution to this, extra stairs were installed to the main entrance and was completed with a long ramp that runs along the facade.

To create a bit variety and life in the facade, the wooden windows were posi-

tioned irregularly. The facade towards the church had to connect in a clearer way to the architecture of the church which means that it got a more traditionalistic look to it with copper and pine wood.

The interior rooms had to be flexible and have generous spaces. The drawing rooms should have a lot of light intake to lighten up the room well enough for the drawing tables. Sun studies were made with a scale model in a laboratory to optimize the light flow throughout the building. The stairwells were placed in the middle of each wing to make all rooms accessible and create a better flow from the ground floor in order to not having to go through the drawing rooms. The raw finish of the inside walls are also visible in the corridors, drawing rooms and auditoriums.



1.5 The community

A-house is a workplace and a venue for creative businesses as well as a place for events. The community has a variety of office spaces, social spaces and large to small event spaces that are adjustable and multifunctional to suit every occasion. Most businesses there have a focus on fashion, music, food and media where the restaurants and event spaces is especially beneficial for this community. The community's biggest ambition is to connect people in different environments by adjusting the spaces to suit particular events besides offering workplaces. All types of events are held like release parties, concerts, festivals and exhibitions and can also be booked by the members to hold events (ahouse, 2022).

Current concept

The community embraces the building and values its architectural heritage which is emphasized throughout the interior parts of the building. It was created for creative architecture students in its brutalistic fashion, which was meant to stand for transparency and the community has taken with this concept and used the existing design to further push this concept which the community describes as "A refined machine for creative development within fashion, food, music and media" and "A house is a catalyst to help your creativity flourish", which makes the adaptation of the building feel like a natural move by the community.

The community's popularity increased during the pandemic as the transformation of our society changed drastically with the way we work and live. The community believes that the combination of workspaces and event spaces are becoming increasingly more important (ahouse, 2022). In other words, adaptive spaces and flexibility are becoming more important - which is a common trend among developers (techgenix, 2019).

Users of the community

A brief interview was performed during the process of the site analysis to the staff of A-house to conduct more data about the occupants (Nadimi, 2022). The data can help to improve existing features or to add new ones which the community may need to be more productive.

General information:

Age profile: Median 35 years old

Occupants: Mainly from outside the immediate area

Main tools: computer, studio, event spaces

Services: Eats at in-house restaurant/café

Lounge



Courtyard



Workspace



Workspace



Lounge



Lounge



Common kitchen



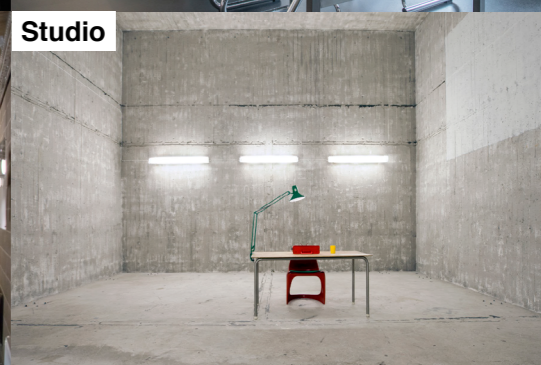
Event space



Event space



Studio



Workspace



Event space



Auditorium

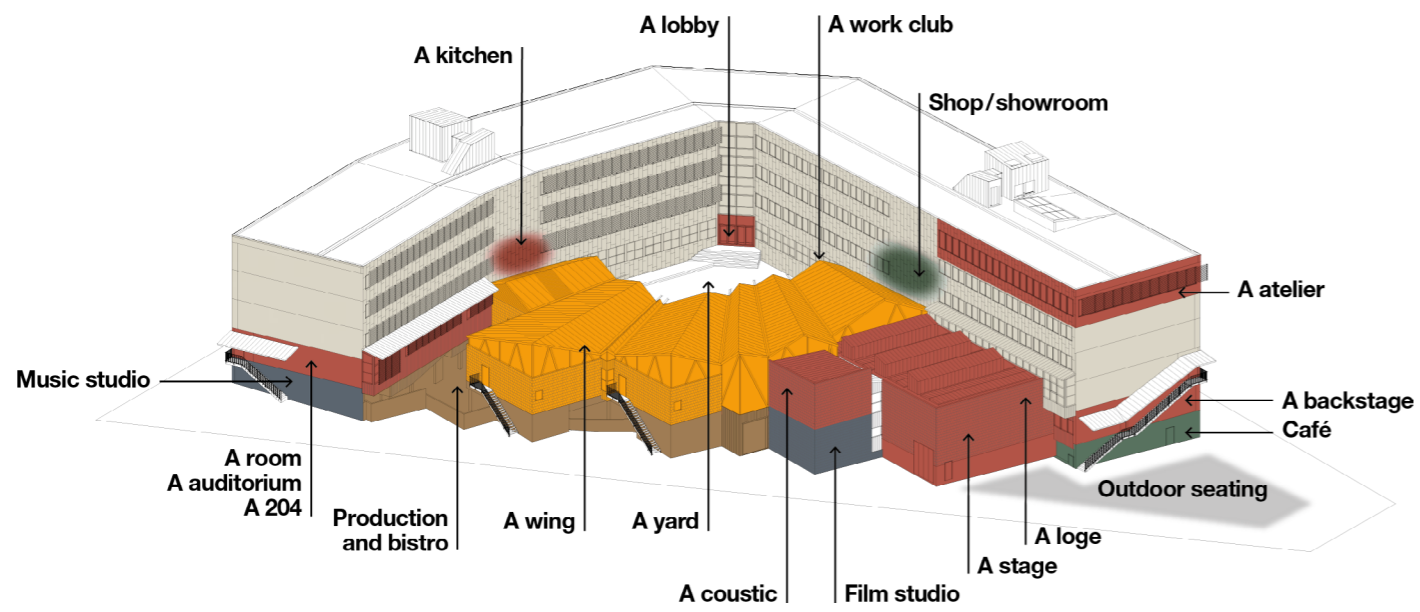


Community, summary

1. A-house is classified as a building monument with its rich history
2. Was converted to be occupied with new tenants and has several functions and features to enrich city and the immediate area
3. Was intentionally made to stand out stylistically in a minimalistic and brutalistic fashion.
4. The uplifted ground floor and entrance situation was a second thought solution
5. Facade towards the courtyard was covered with copper for a more traditional-istic look
6. The interior was designed to have flexible spaces and a lot of light intake
7. A-house: Creative business hub, event spaces, social spaces, restaurants
8. The building was designed for creative work which the community embrace and values the architectural heritage
9. Community became more popular during the pandemic and the community believes that adaptive spaces are becoming more important

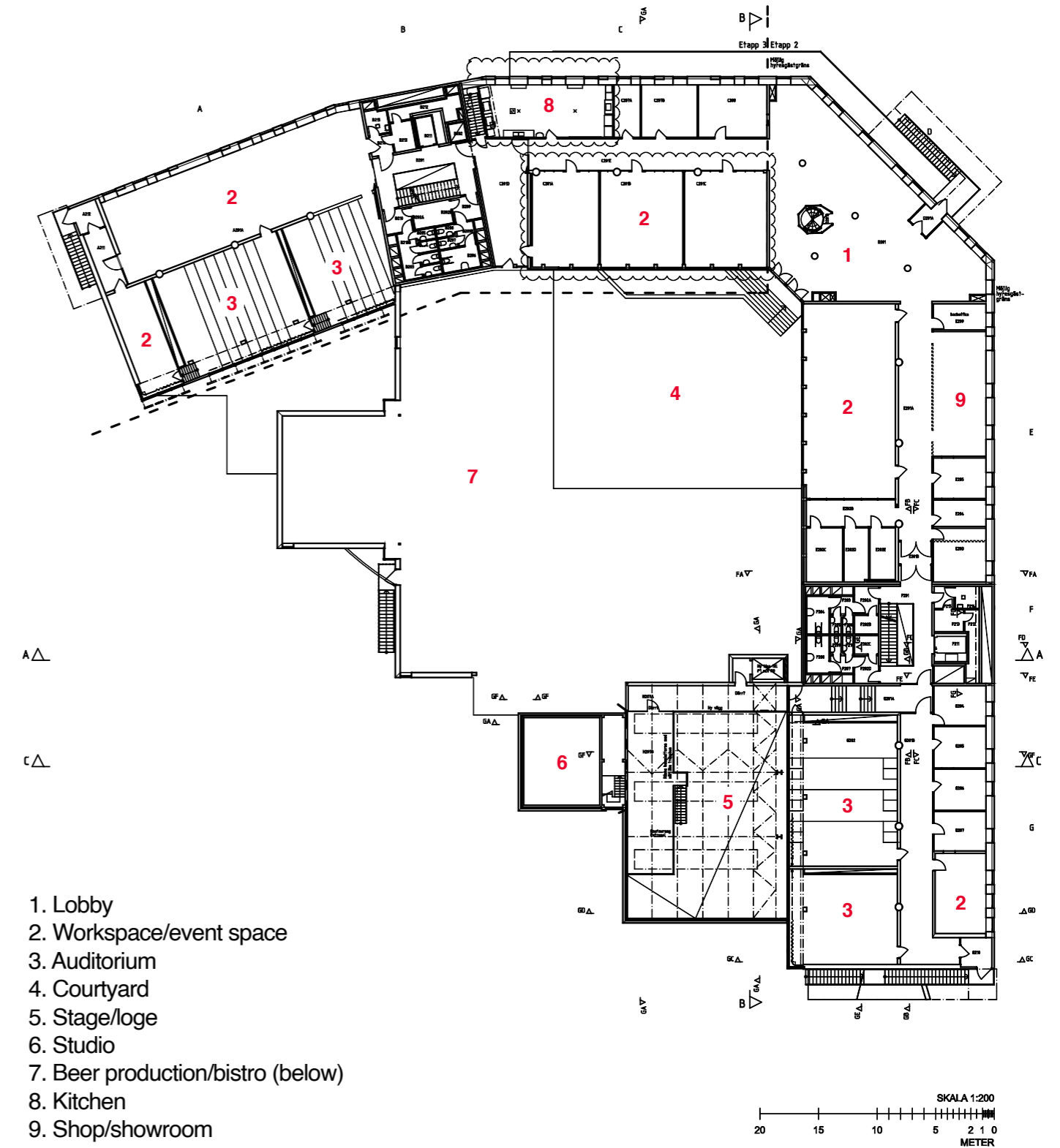
1.6 Current features and floorplan

Yellow marking: A future addition (ahouse, 2022).



Main floor

The configuration of the main floor permeates all floors above ground level (except the auditoriums).



1.7 Insights I

- The area where the building is situated does not have a fully developed coworking hub and A-house is a community that is increasing in popularity and decreasing in capacity. There are many unused spaces that potentially could uplift the experience and add features to develop the multifunctional coworking hub into a more attractive spot for the neighbourhood as well as people from outside the district to reach a bigger audience and make way for public use by adding suitable functions.
- It is only accessible from the east side which prevents easy access from the west where there is a lot of activity, circulation, car parks, ecology and an appealing stonewall beside the church. Adding an entrance point would create a natural way to enter the building.
- The flat roof and the increasing need for different kinds of event spaces by the community makes it suitable to take advantage of to create valuable spaces for public use as well
- The building has valuable views from the courtyard and from roof height where one can oversee bits of landmarks across the city in the southwest direction which creates opportunity to expand the space on the courtyard and the roof.
- Sun exposure is high on the courtyard and roof which creates opportunity to take advantage of the existing space to increase the amount of sun time available for the community and public users.
- Building is appreciated by the community but has a bad reputation as “the ugliest building in Sweden”. Opportunity to make positive change-

The leading influences from the analysis

- The community and culture
- Landscape, micro-climate
- Accessibility
- Constructed form

Constrains

- Noise reductional elements on the additional floor may need to be implemented on the north, east and south side of the building which can implicate on the design.
- The developable area is restricted to the buildings existing zone.

Spaces to develop and improve

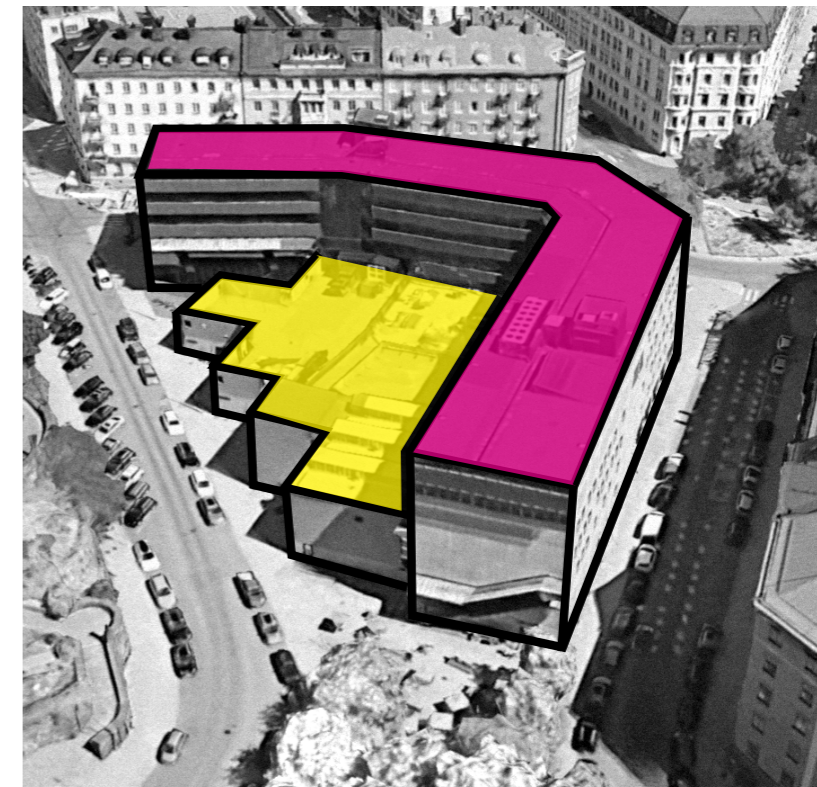
- Roof
- Courtyard
- Interior space

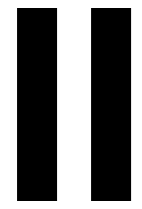
Refining the vision

The building was designed as a creative space and is being used by a community that has turned it to a multipurpose building with all the features that it has. The analysis of the building and community has provided necessary input about what it is, how it works and how people are using it. To make any improvements and enhancements to the building, I believe that it is important to think about the current characteristics, qualities and the community to make the building more adapted to the nature of the site.

It is however not suited for public use above the ground floor. By increasing the target group, more people should have access to the building. By turning it into an even more multipurposed building with a programmatic change and incorporate specific functions and features that fit into the context, the building should be more useful to more people and become resource effective in that sense.

The information about the community and the knowledge workers can be used to develop an improved coworking hub to satisfy the arising need of hybrid spaces. In the following chapters “Adaptive reuse (II)” and “Design development (III)”, more research and analysis about the exterior and interior spaces will be made to fully understand how the spaces should be designed and configured so that the most suitable configurations can be incorporated to the existing fabric.





Adaptive Reuse

- 1.1 Site location and background
- 1.2 Statement of the problem
- 1.3 Goals and objectives
- 1.4 Methodology
- 1.5 Process

To substructure the design development, adaptive reuse is researched on to use it as a guide in order to better understand what is needed for the building and make a more suitable approach by creating a framework to emanate from. The conducted data from this chapter will be used for creating a design strategy to improve A-house as a multifunctional coworking hub.

2.1 Adaptive reuse

“Adaptive reuse” has been defined and clarified many times in many ways before. Some focus on upgrading to contemporary architectural language and others advocate for the historical significance and to make minimal changes. The common idea nonetheless is to reuse the existing fabric and insert a program that is different than the original intentions and structures of the building (Beard, 2012).

“Because structures tends to outlive functions, buildings through history have been adapted to all sorts of new uses.” (Mehr, 2019 p. 930).

As norms and demands change over time, so does buildings. Society and cultures leaves its marks in all ways and is especially noticeable in the functions and appearances of buildings. The ingredients of features and characteristics that should be kept of a city is determined by the particular generation (chan, 2018). The changes buildings go through are inevitable over time. Even though people bound memories and associations with them, they become outdated in several ways which are represented in the following themes:

Physical

Structural instability

Economical

Is not economically viable to function with the original design and features

Functional

The practical features are no longer required

Technological

The equipments are not up to date or is unable to adapt because of inflexible planning

Socio-cultural

A church or a mosk i.ex. is no longer needed in its current timeline and place which makes it unnecessary

These aspects generally enables change to take place and therefore makes adaptation of a significant building more acceptable. It doesn't necessarily need a change in its physical shape or visual appearance at first hand to adapt it to new requirements though, adaptive reuse is a process to find suitable functions via programmatic settings that is spatially limited to its existing shapes (chan, 2018). If the new desirable programmatic setting is hindering the adaptation to follow through specially perhaps additions or subtractions needs to be performed to accomplish the changes.

2.2 Defining the meaning of adaptive reuse

Quotes from experienced Architects (Chan, 2018).

“The ultimately sustainable building is a building that you can recycle. Instead of demolishing the building, you can adapt it to change. The challenge is to do buildings which encourage change, which respond to change, and to have technologies and techniques which enable buildings to improve their performance.”

- Lord Norman Foster, Executive chairman. Foster + Partners.

“Adaptive reuse is totally central to the way that we live today.. I think with the increasing pressure of sustainability, of survival on this planet, we need, at all times, to be making the best use of what is already built. So the challenge for today is to find ways of bringing new life to those buildings. This is particularly difficult when it comes to adapting existing buildings to meet higher and higher energy and sustainable standards.”

- Spencer De Grey, Partner. Foster + Partners.

“...[Adaptive Reuse] is [about] what place or value a building has within its community, what society's association is with that building and its importance to it. Of course we have a National Heritage List to address this, however, the building does not necessarily have to be listed to hold favour within a community. That is probably one of the first things that you as an architect want to delve into – the history of a building to understand the communal value to the people who live around it and use it.”

- Gavin Robinson, Associate Partner. Sheppard Robson.

The aforementioned quotes give accurate descriptions of some fundamental perspectives and ideas about adaptive reuse where flexibility, recycling, sustainability, history and culture are some of the driving forces to this increasingly common goal to improving existing buildings and become more resource effective within our cities and where the architectural viewpoint is playing a big role in defining new concepts to help determine the necessary actions in order to take steps eh the right direction.

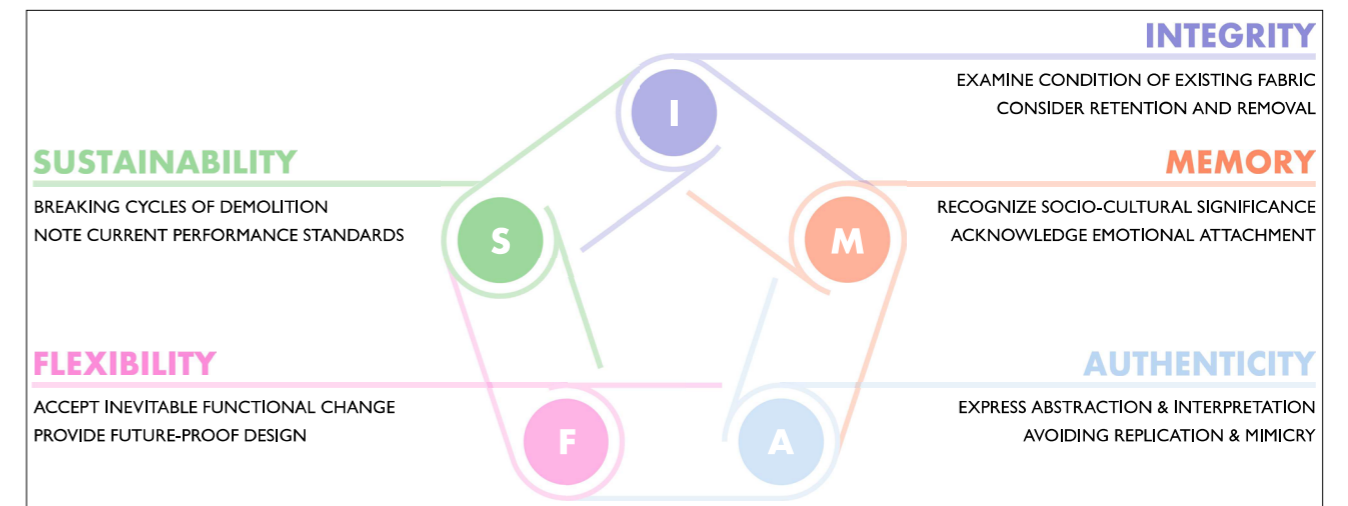
The following page describes the principles of adaptive reuse to give a more detailed understanding how it can support this thesis to possibly get more accurate end results of the improvements and enhancements of the building.

In a research project from 2018 and main resource of adaptive reuse in this chapter, “*Alternate Realities - Approaches to Adaptive reuse*” by Hugo Chan, p.184-248, a sequence of interviews were conducted with Architects and designers from the major cities Hong Kong, London, New York and Sydney about their works, thoughts and viewpoints of adaptive architecture. There were 38 cases of adaptive reuse studied and 20 interviews made in the research project.

A conclusion of the interviews was made by the author to fractionate the components of adaptive reuse which can be used to describe the principles of it more precisely and give more accurate answers in order to use it as a better guidance and at last create a framework in the direction of functionality and form as well as creating a more suitable approach before designing any new element (See page to the right).

2.3 Five component of adaptive reuse in practice and the current global directions

The awareness of sustainability, high cycles of demolition and buildings designed to fit its context has increased steadily during the 20th Century which has created a new interest of adaptive reuse. The fixation for new buildings in urban areas has declined while adaptive reuse has been welcomed as people understand that cities can be more than unvarying and repetitive buildings and instead become varying where the buildings time periods, shared history and memories differentiate (chan, 2018).



Integrity

The first point is that of integrity. Preserving the integrity of the original fabric where conservation takes place with rigor and without detrimental changes. Repairs are made at the bare minimum and there is a marked avoidance of replication. Integrity also informs deciding what aspect ought to be retained and what can be removed and altered, whilst retaining key original qualities of social and cultural significance.

Memory

Secondly, and closely aligned to the theme of integrity, is memory, which recognizes that buildings are often, physical manifestations of a particular moment in history whether nationally important or locally significant, resulting in significant socio-cultural and emotional attachment by individuals and communities. An understanding of place therefore enables practitioners to begin considering how a site maybe reinterpreted, reinvented, represented or reused.

Sustainability

Recognizing the constant cycle of demolition and construction of wholly new, purpose-built structures is no longer a viable, reasonable or sustainable means of urban development. Projects take into consideration sustainable approaches from the recycling of entire structures on site, to the careful and critical analysis of which components should be demolished or replaced to reduce the overall ecological footprint of construction.

In bringing these five principles together, it is of course recognised that they are not universally applicable to each and every project. Whilst they are not always applicable it is undeniable that successful cases of adaptation are often, a mix of these, contributing to the overall success of a project which seeks to adapt, revive, reconsider and revitalise.

Authenticity

The cross section which was taken demonstrates the broad consensus that new fabric should be of its time and tectonic culture. They present a thoughtful abstraction of preexisting form and spatial qualities, not replication or re-creation of past forms. The result is the generation of new experiences in how the end user interacts with both the historical and the new built fabric.

Flexibility

We have seen that change is perhaps the only constant factor over the course of the development of our cities. There must be recognition that functional change is almost inevitable and that it is necessary to plan for the foreseeable unforeseen circumstances of the future. As a result, projects provide a degree of flexibility, where further changes might be easily integrated and no longer be bound by the rigidity of specific spatial forms and functions.

Adaptive architecture has been recognised through this research as not merely being confined to heritage buildings, and nor are they exclusively concerned with transforming a site from one use into a wholly new one. Many examples of the case studies showcased here are attempts to modernise, contemporise or improve existing building stock, bringing them in line with current statutory requirements but also reinterpreting them to generate new experiences. Simultaneously, adaptation reveals that many of our buildings are already composites of multiple periods, rather than artefacts frozen in time and place. The layering of multiple languages of architecture adds to a city's diversity and to the wider continuum of history. Fundamentally, adaptive reuse can be seen as a critical regionalist approach to architecture which reiterates to us is the significance of place: the fact that architecture is not merely a universal machine for living and working in, but actually an inseparable part of our individual and collective memories and experiences of the city.

Summary of the principles

Integrity

- Preserving the integrity with the original fabric
- Conservation without detrimental changes

Memory

- Buildings are often physical manifestations of a particular moment in history, nationally important or locally significant
- Socio-cultural and emotional attachment by individuals and communities
- An understanding of place
- Enables consideration of reinterpretation, reinvention, representation

Authenticity

- New fabric should be of its time and tectonic culture
- Thought abstraction of preexisting form
- No replication or re-creation of past forms
- New generation of experiences in both historical and new built fabric

Flexibility

- Functional change is almost inevitable
- Necessary to plan for the foreseeable unforeseen circumstances of the future
- Projects provide a degree of flexibility
- Further changes might be easily integrated and no longer bound to the specific forms and functions

Sustainability

- Recognizing the constant cycle of demolition and construction
- Purpose-built structures is no longer viable, reasonable or sustainable
- Projects take into consideration sustainable approaches
- Should be carefully analyzed to determine which components should be demolished or replaced
- Reduce the overall ecological footprint of construction

The five principles as a whole

- Not universally applicable
- Successful cases of adaptation are often a mix of the five elements and contribute to overall success
- Adaptive architecture is defined for all types of buildings and projects from the research
- Many buildings are composites of multiple periods rather than artefact's frozen in time and space
- The layering of multiple languages of architecture adds to a city's diversity and to the wider continuum of history
- Architecture is not merely a universal machine or living and working in, but actually an inseparable part of our individual and collective memories and experiences of the city

Elements and approach

The case study and the problem statement in this thesis naturally directs questions and thoughts about improvements in terms of functionality and would therefore be appropriate to pick elements that covers that area primarily and perhaps use some of the necessary qualities from the other elements that comes with them.

The leading goal of the project should result in a state where the essential qualities of A-house are based on functional change for the individual and community.

Main elements:

- Flexibility (Functional change, plan for the future)
- Memory (An understanding of place)
- Authenticity (Abstraction of preexisting form, new additions of its time)



2.4 Design strategy

“When a building is reused, the most important and meaningful factor in the design of the new building is the relationship between the old and the new” (Fisher-Gewirtzman, 2016). The mixture and relation of old and new was categorized into three strategies which is illustrated by the following scale-diagram (Fisher-Gewirtzman, 2016).

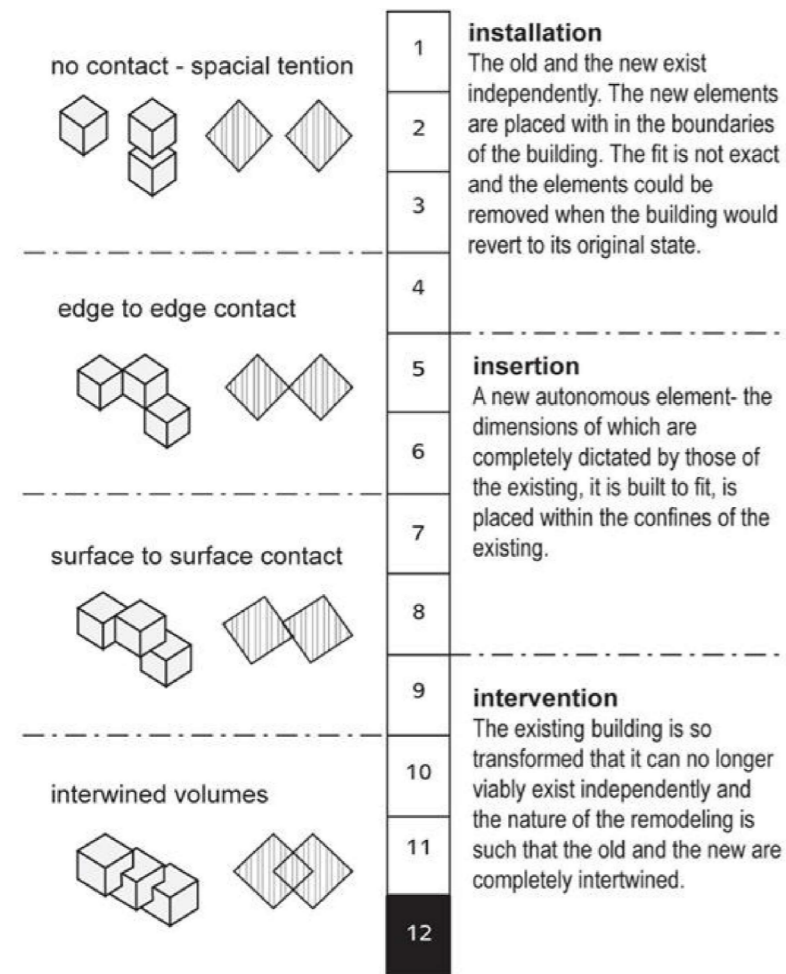


Figure 2: The extent of transformation of an existing building, including the three categories/strategies, four diagrams that illustrate the physical application, and a numeric scale that links the two measures.

“Intervention” has the most detached relation between the old and the new while “installation” is the most detached. The numbers 1-12 is a ranking system that evaluates the grade of transformation. For example, an addition of a new floor on the current roof of A-house would create intertwined volumes between the existing structure and the additional floor, which would be described as an “intervention”, and would develop a strong relationship between the volumes.

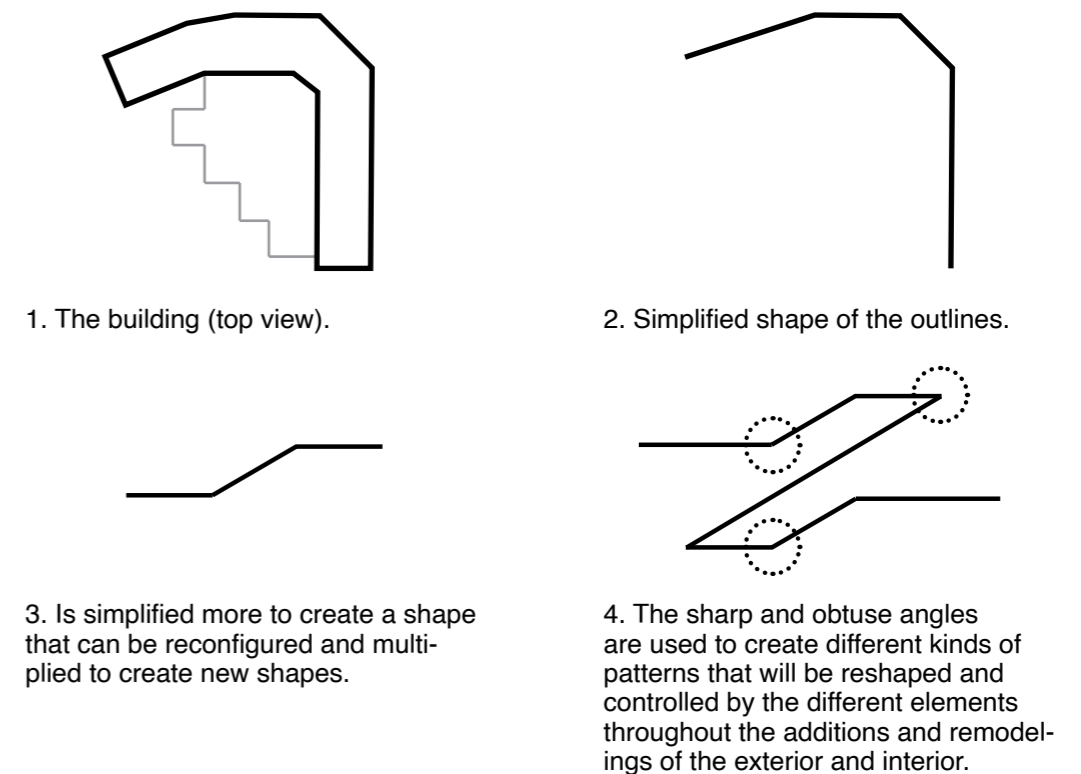
By understanding the existing built form, new and improved interpretations can be made of the design. When analyzing a building, the unseen characteristics of it can be uncovered and used to its advantage (Stone, 2005). It can help to develop a design principle and tactics for the building. A deep understanding of a buildings context creates the most suitable project in the end.

The meaning and reveals of the existing fabric will have an impact on the final design. It can be revealed through simple observations or attributes from the site, the buildings shapes or history for example. The most important and dominant component to a redesign is the existing form and the relation between them as the original design needs to exist in order to realize a new reinterpretation, which the strategy is based from (Stone, 2005).

“intervention” will be the main principle of additional volumes, as there will be many new layers added to the building since the capacity of it is planned to increase to support more users and provide new features.

In this case, the mass, form and rhythm of the building has inspired me to create a design pattern as a part of the strategy.

Design pattern



2.5 Tactics

“The tactics employed within the remodeling of a building can be seen as the manipulation of the elements or details in support of the strategy. They are an expression of the use and of the character of a building. It is these elements that distinguish or make different one place from another. The elements give character; they define the quality and provide the features of a building and it is this tactical deployment of them that gives the remodeled building its individual nature.” (Stone, 2005, p. 8),

The tactics are divided into six parts and describe the elements specifically:

“1. Planes define space. The various planes can control the visual and physical limits of the space.

2. Light controls space and form.

3. Surface is the tactile element that establishes a direct relationship between human contact and the building, using materials, ergonomics, etc.

4. Objects can manipulate space, movement, and visual directions. The objects can be of any scale or type and can enhance the space they occupy.

5. Openings are focal points in the building. They create views, provide orientation, and establish relationships between spaces.

6. Movement can prove to be more than purely functional, forming sculptural elements and focal points within the building.”

The design strategy along with the tactics can be used as a guideline to manipulate the exterior and interior spaces

The design strategy along with the tactics can be used as a general guideline to design exterior and interior. It will mainly be implemented to the additional and reshaped elements.

2.6 Insights II

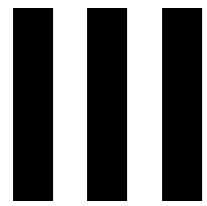
The aspects of adaptive reuse is generated from a broad and complex topic based on projects of all kinds and time periods, though the research about its definitions and principles has illuminated and boiled down to the very roots of the meaning of adaptive reuse in this chapter which helps to take general precautions and thoughtful decisions as these aspects can have big impacts on buildings, neighbourhood and cities in real life.

The characteristics of the principle “flexibility” can help to design spaces that are more resistible to obsolescence by creating flexible spaces which in this case I think it can be achieved with large open spaces that are easy to reconfigure. It would satisfy the needs of the community that arrange large events as a part of their business and improve the coworking spaces by enabling the furniture to be rearranged freely.

The importance of the principle “Memory” is necessary to consider for A-house due to its significant history, classification as a building monument and emotional attachment by people. The characteristic qualities of the facade and the interior spaces will therefore remain the same as much as possible. These qualities are often represented with materials of its time though it will not be taken in consideration in this thesis but those elements will interfere as little as possible with the additional features which is thought to fit into the buildings context from a holistic approach.

With the principle “Authenticity”, the new built fabric can remain distinguished from the existing form to create a reinterpreted version instead, where the new spatial qualities is contrasted to the old. Since A-house was originally designed to stand out from the surrounding buildings it would perhaps be suitable to distinguish the new fabric from the old again to create dynamic spaces and pursue the initiated pattern.

All the attributes of the principles, design strategy and tactics studied in this chapter can be used to shape the elements and features in the building.



Design Development

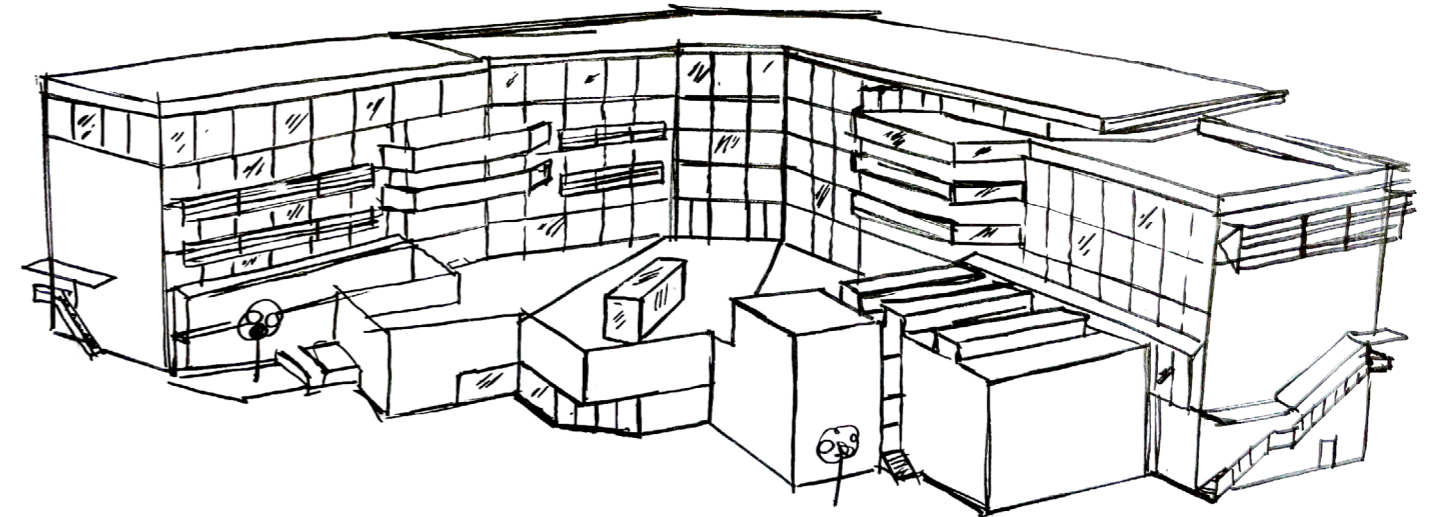
- 1.1 Site location and background
- 1.2 Statement of the problem
- 1.3 Goals and objectives
- 1.4 Methodology
- 1.5 Process

The process is divided into three parts starting with the exterior elements where the main additions and improvements will be developed followed by improvements of the interior parts and the coworking spaces.

To adapt the building for public use and the community, the building needs to improve to connect with the surrounding circumstances and be more accessible to the public as well as enhance the functions and features of the coworking spaces. The adaptation should also prepare A-house to support for the increasing interest and growth of hybrid coworking spaces.

The following pages develops and presents the improved spaces based on the research and insights retrieved. To begin with, the main additions and features that improves the building as a whole to the public and community are solved followed by improvements of the coworking spaces.

The design proposals are presented during the process and the thesis ends with a discussion and conclusion.



3.1 New layout of A-house

To make the most impact in the city, immediate area and community, a programmatic change to the building is made in order to improve A-house with flexible spaces and create hybrid spaces.

The most obvious alternative for me initially was to add a new floor on the roof to create new spaces with the existing fabric as well as other features such as a new entrance and elevator to improve the circulation and activate the courtyard more.

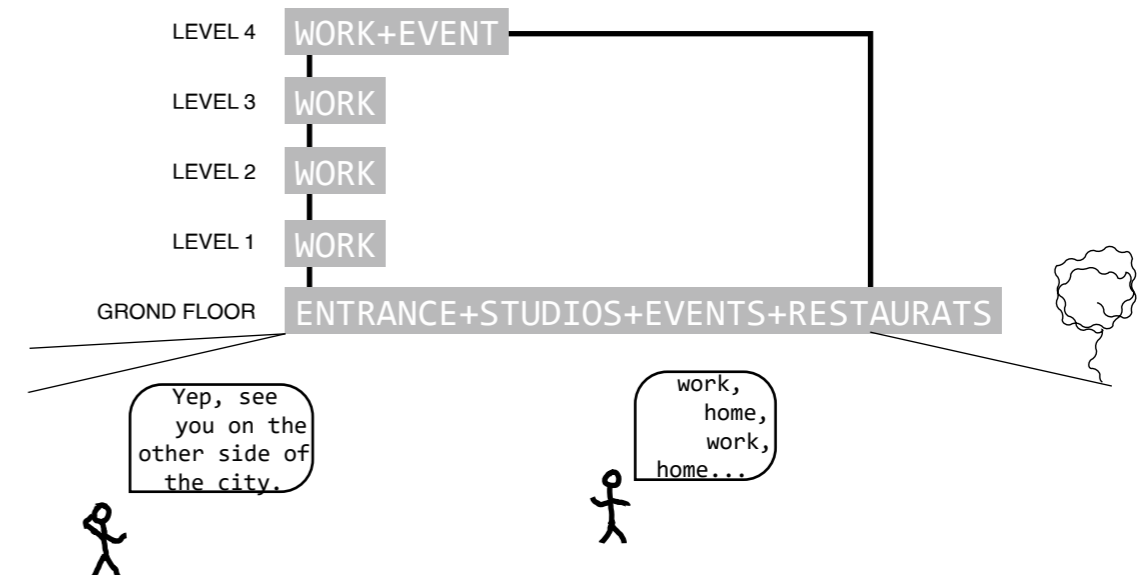
It activates the area in the neighborhood and improves the building for the community's needs according to the insights collected.

The additions should be spread out on each floor where the functions suits the most and the concentration of the activity spaces should increase higher up in the building where there are valuable spaces suitable for activities, socializing and gatherings.

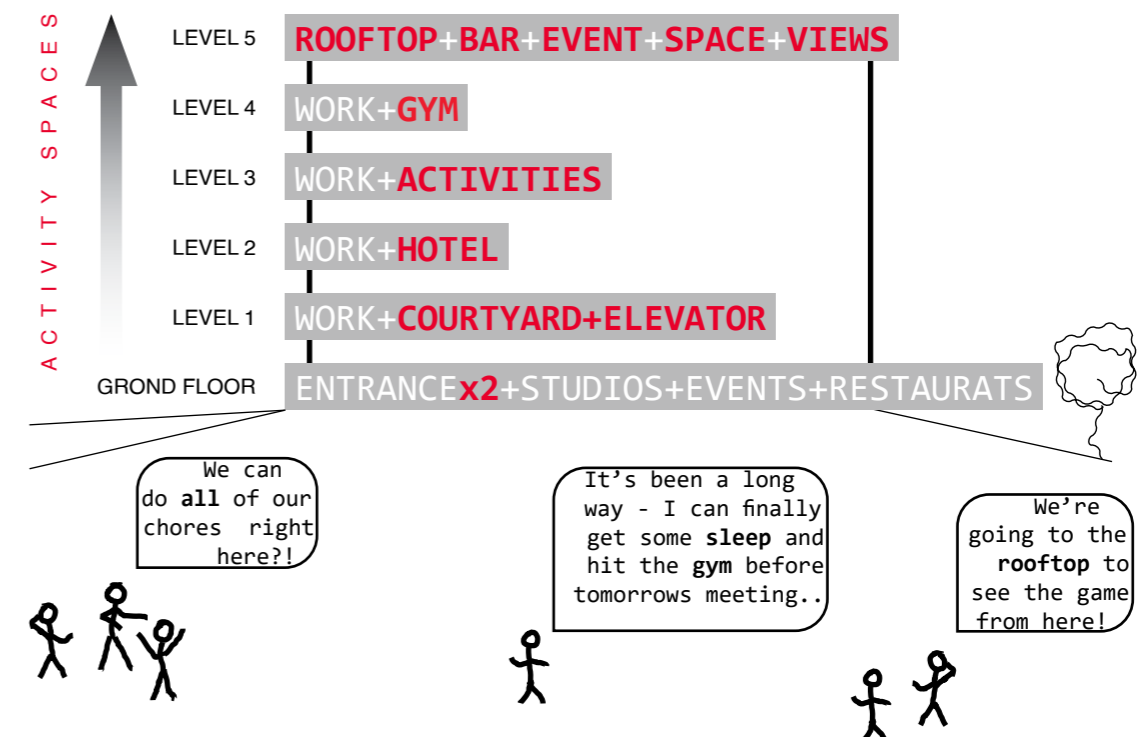
It can be used as a "square" where people meet up after work or be used as a workspace.

A mix of these new functions combined with the existing workspaces would create a proper coworking hub that live up to modern standards in terms of features and benefits people in their everyday work environment (Convendum, 2022) though a hotel is not a common feature in environments intended for workspaces such as A-house. Some major hotels has implemented coworking spaces as a part of their concept (Westin, 2020). The idea is that these concepts does not have to tilt towards the other end and that a mix of a hotel and a coworking hub can be created in this case but with a focus on creating well-planned workplaces.

1. Current program



2. New program

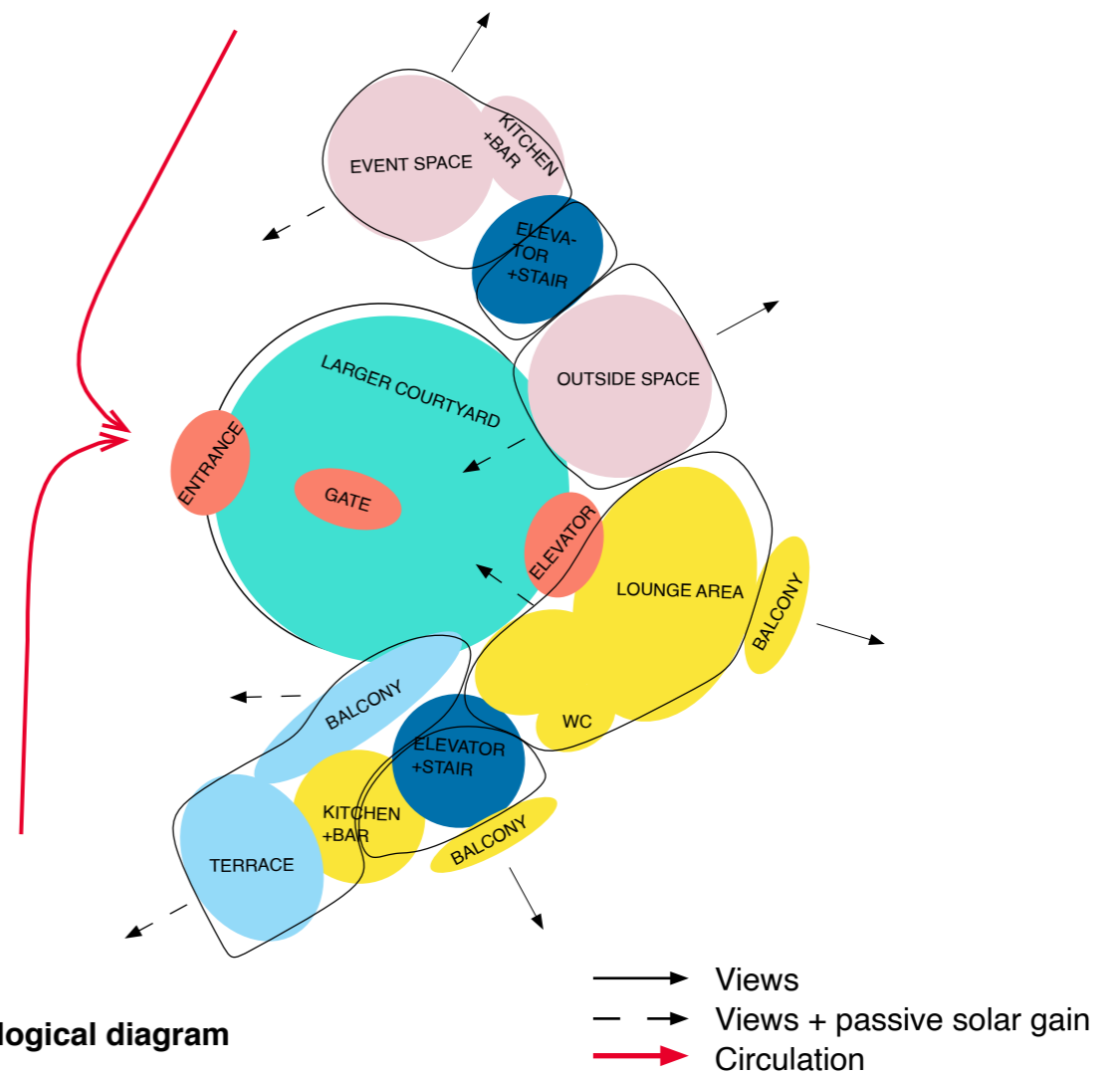


3.2 Relationship between the elements

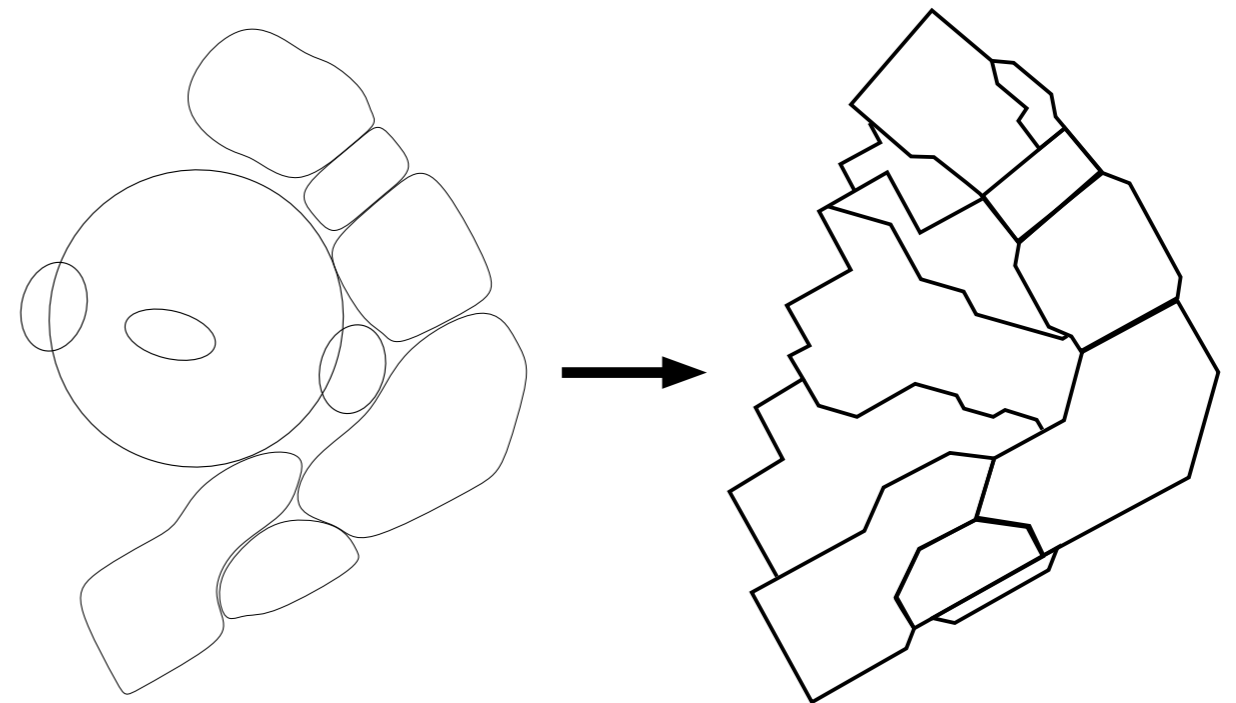
The new diagram describes a new program for A-house which represents all the new functions that are strategically placed to maximize its use and purpose to the context of the neighbourhood.

By looking at the spaces in-between the new elements, the abstract shapes could turn into the new defined shapes which are based on the aforementioned design pattern that uses sharp and obtuse angles to form spaces.

- The new entrance, gate and elevator creates a welcoming and natural path when entering the building.
- The unused spaces of the courtyard is in union with the preexisting to enhance the space and to support more users.
- When entering the rooftop, a lounge area is situated and a balcony as well as WC is closely placed for more convenience
- The event spaces are placed high up in the building to maximize the views and access to direct sun. which are closely placed to the existing elevators and stairs (dark blue) to improve the circulation.
- The terrace, restaurant and bar is placed on the end of the south wing to be free from other functions and make the most of the exclusive views.

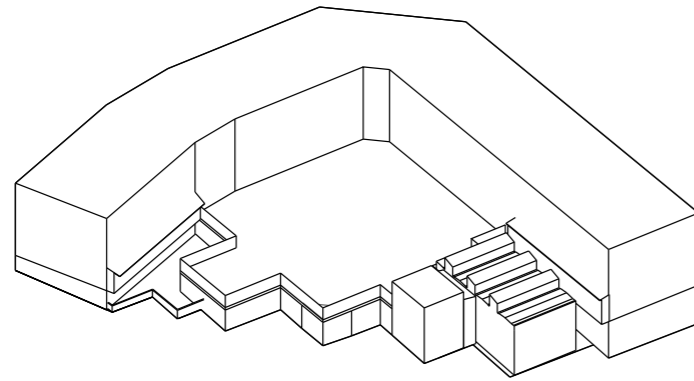


1. Topological diagram



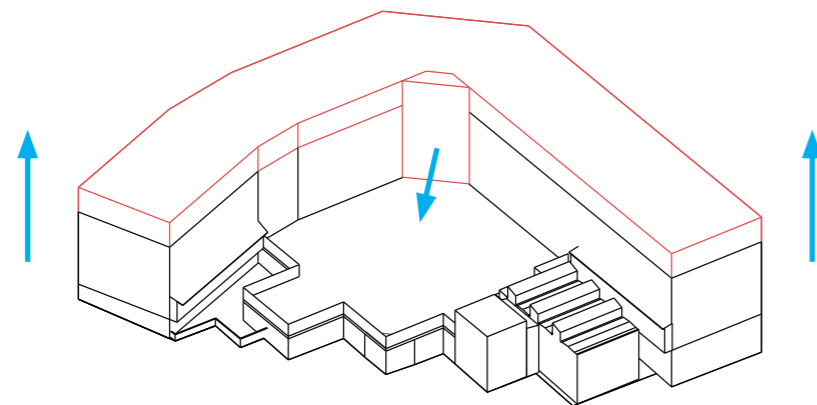
2. Finding spaces in-between the elements

3.3 Large scale - General improvements and new features



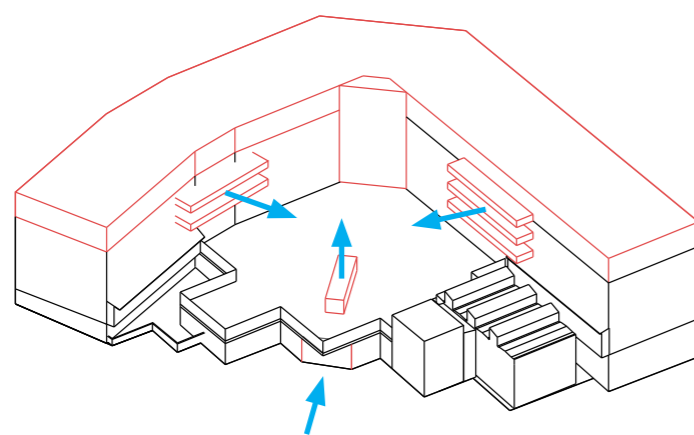
1. Current state

The buildings location in the city and proximity to main roads, parks, offices and residential areas makes it suitable to act as a common meeting and activity space in the area for the public. It can be improved and gain flexibility by adding more layers of features.



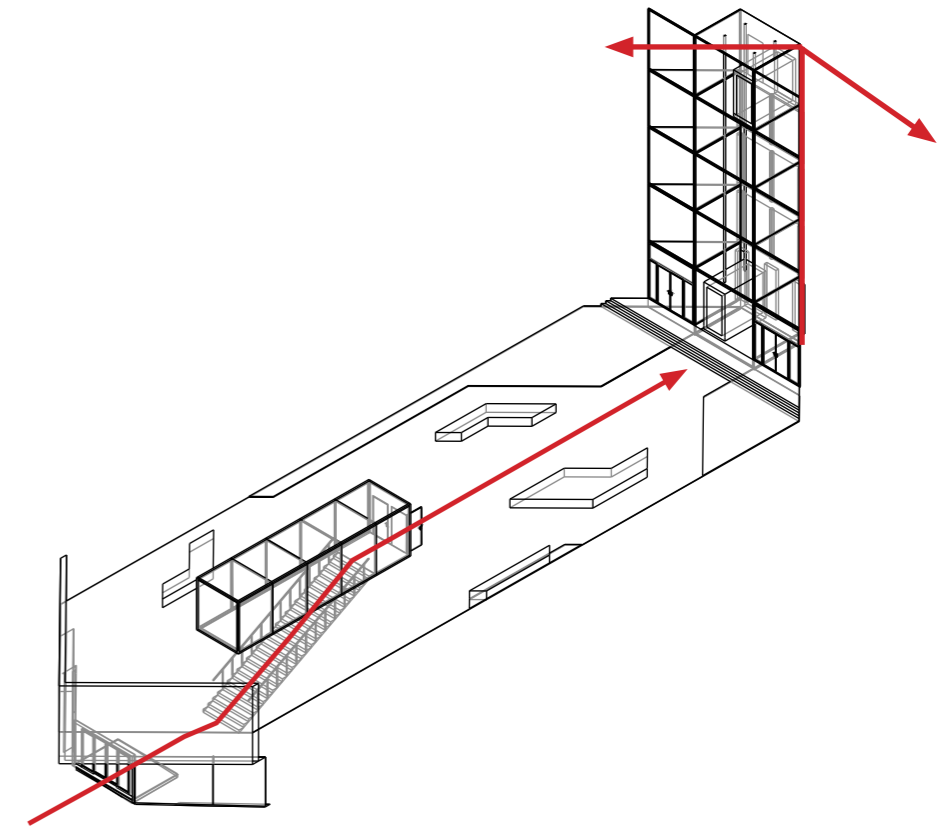
2. Additional floor

Using the preexisting geometrical shapes as an inspiration to create the new floor vertically and adding a volume to it that interconnects the programmatic features.



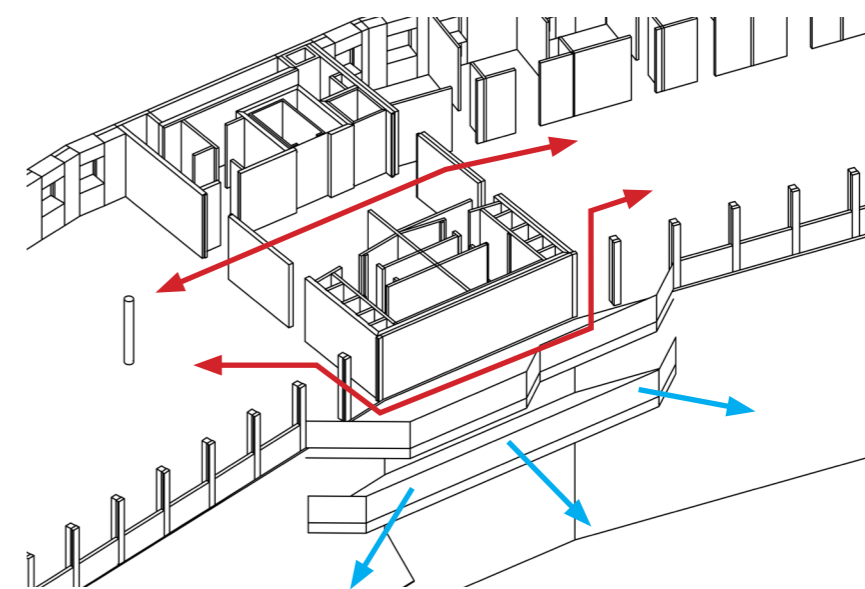
3. Additional features

A new entrance with a gate and balconies is added. The additions improve A-house to become more versatile.



4. Entrance situation and circulation

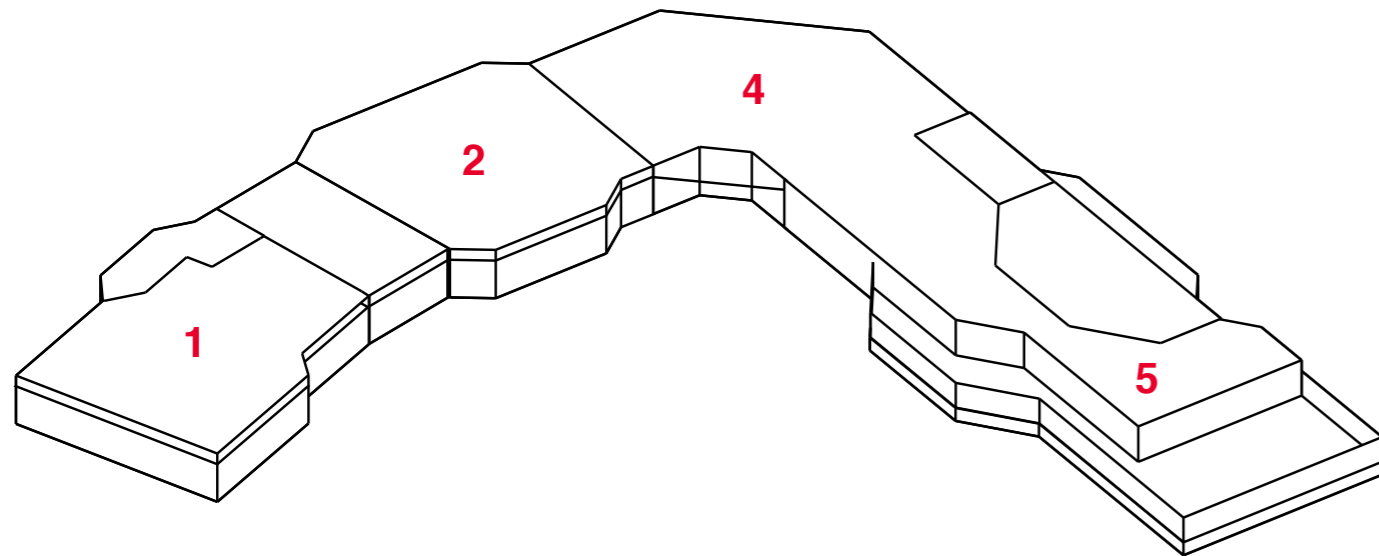
The new additional main entrance improves the circulation around the building with access points on each side (NE and SW) and creates a natural flow when entering the building through the courtyard to the additional elevators that connects to all floors. The design pattern is implemented to the elements of the courtyard.



5. Balconies

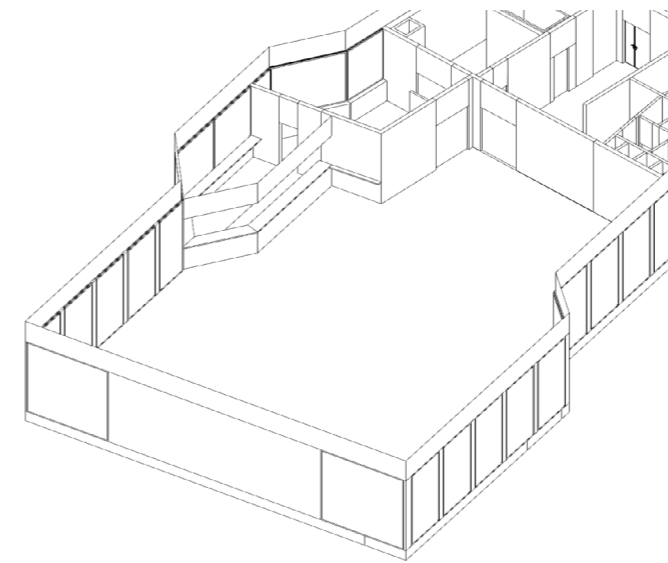
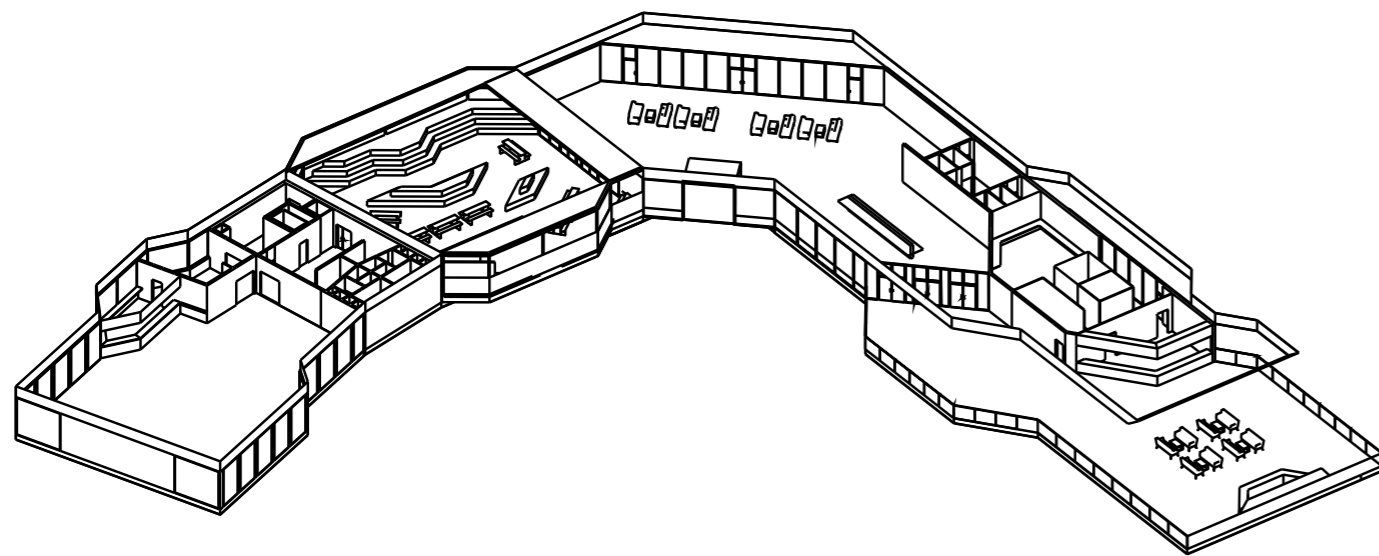
Creates a new passage between two rooms and enlarges space that increases the range of activities and gives access to sunlight and prominent views towards the courtyard, church and neighbourhood. The design creates dynamic shapes to the balconies and provide to the function.

3.4 The additional floor



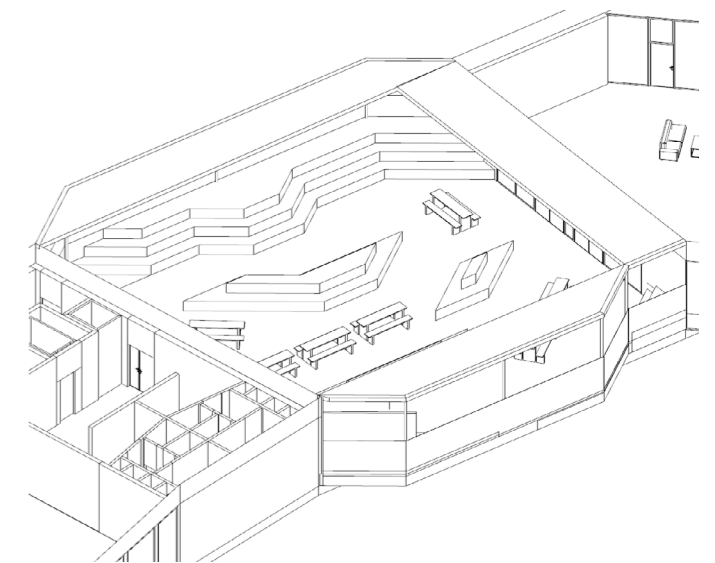
1. Configuration

The additional features are designed to respond to the buildings context and its attributes; high sun exposure long views and historically significant location in the fashion of the design pattern that is used to shape the exterior and interior while creating practical spaces that contrasts to the existing form.



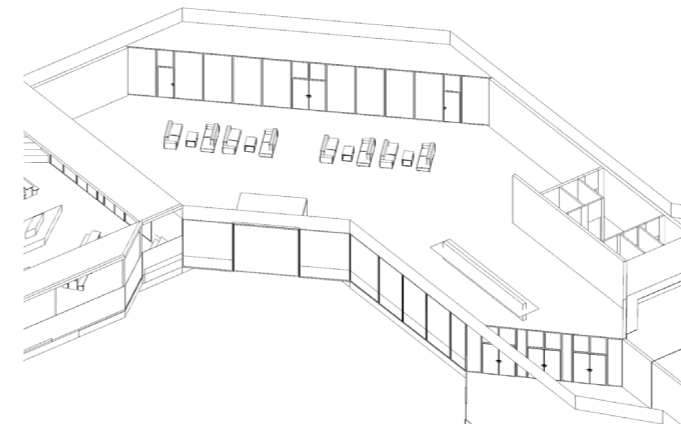
2. Event space

This flexible area satisfies the community's needs of large, open and configurable spaces which is equipped with a kitchen, bar and restrooms to support big events. The light intake from the large windows creates a vibrant setting as well as long views towards landmarks.



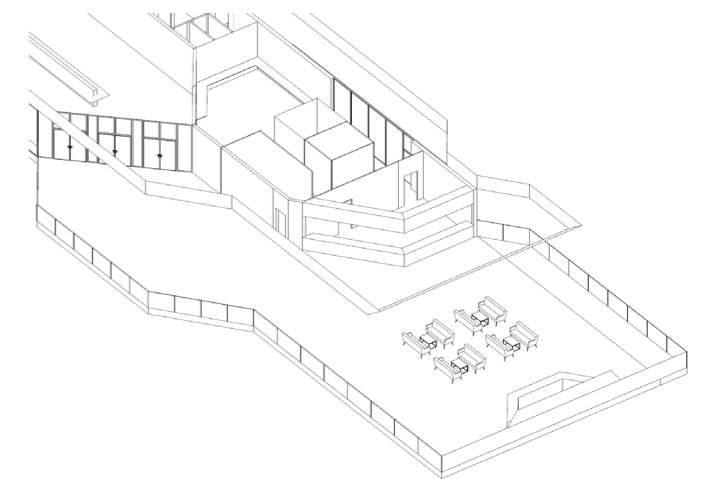
3. Outside space

A common area for entertainments and activities where people from the community and the general public can meet and socialize. The space is flexible with rearrangeable furnitures. The noise reductional elements recudes the sound towards immediate neighbours and functions as railings. The open roof enables maximal sun exposure.



4. Lounge area

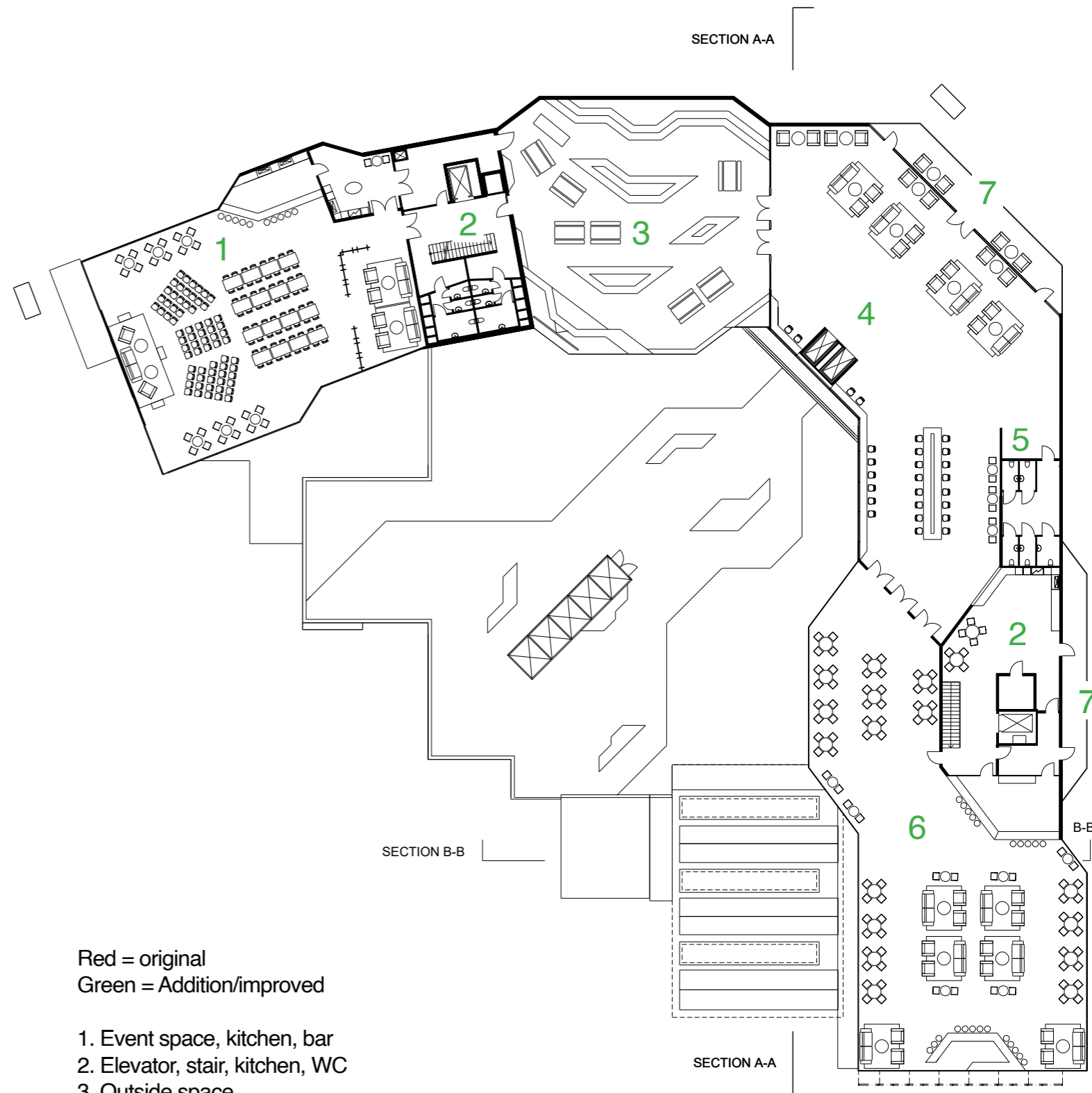
The elevator leads up to the floor where the lounge area is situated. It acts as a gate between the spaces. There are sitting areas spread out as well as chairs and tables placed alongside the large windows towards the courtyard to retain the valuable views. The curved elements divides the space to reduce noise from bypassers.



5. Rooftop

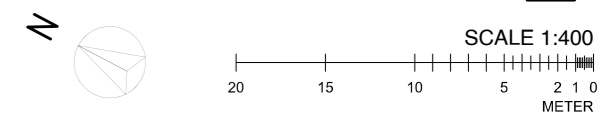
A common restaurant, two bars, café, outside area and views towards landmarks around the city creates a welcoming space for lunch breaks, catching the sunset and similar occasions.

Additional floor - Level 6



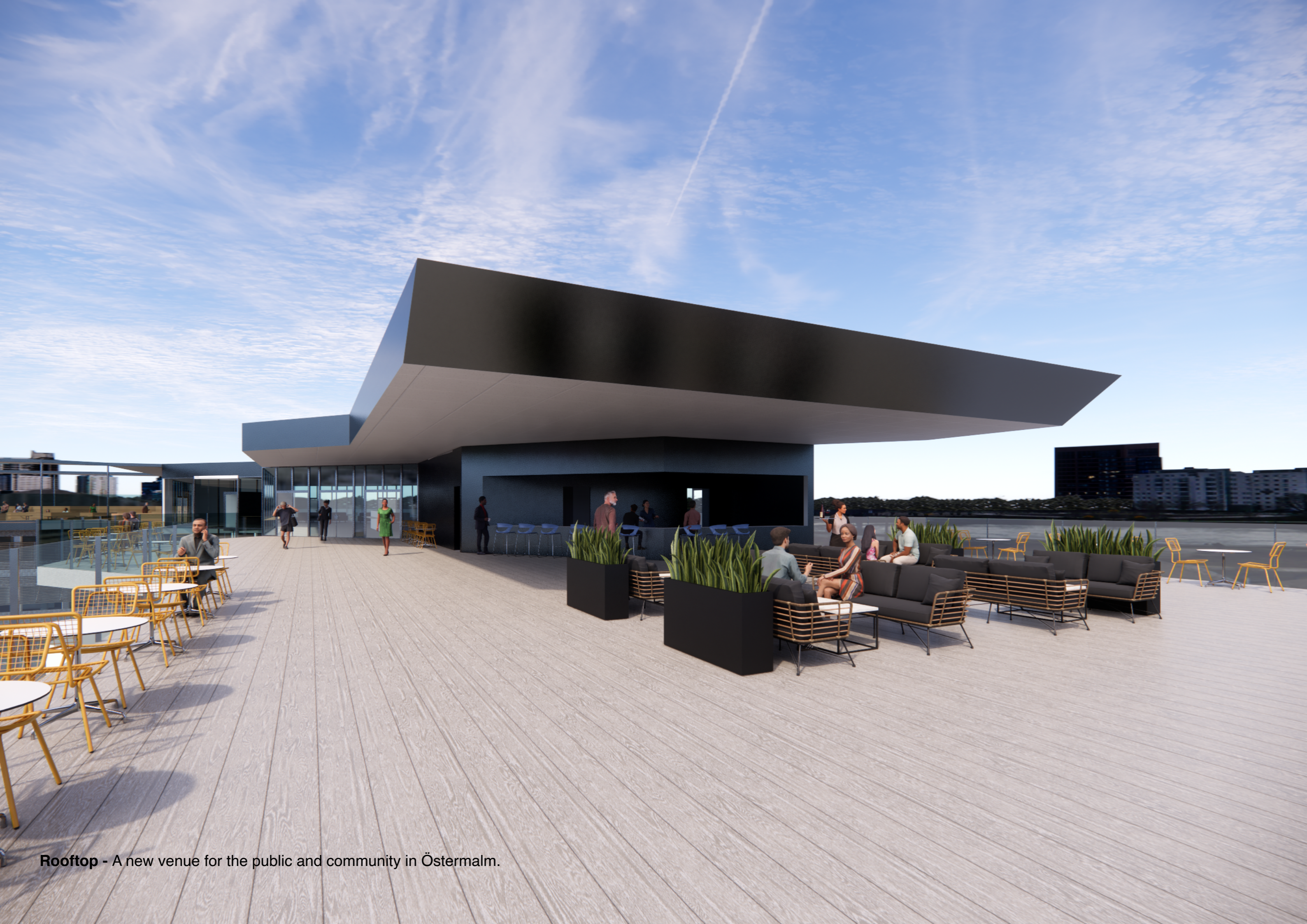
Red = original
 Green = Addition/improved

- 1. Event space, kitchen, bar
- 2. Elevator, stair, kitchen, WC
- 3. Outside space
- 4. Lounge, elevators
- 5. WC
- 6. Restaurant, bar
- 7. Balcony





Outside space - A place for social activities.



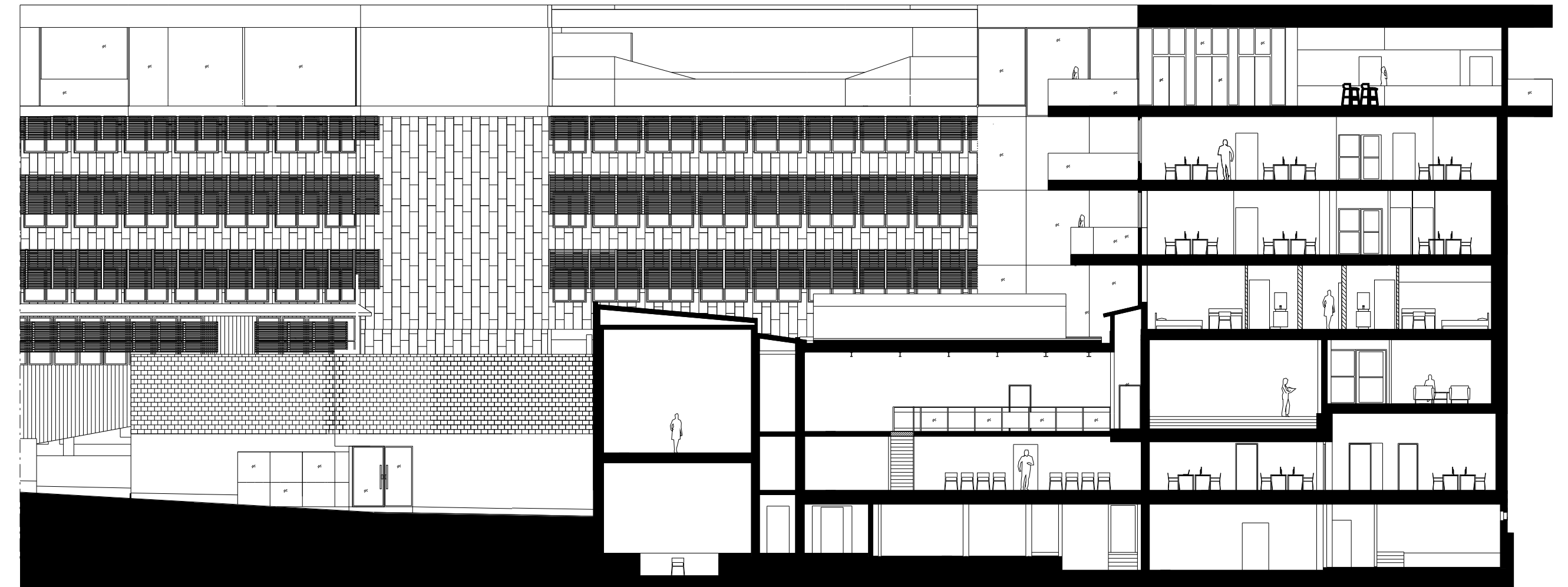
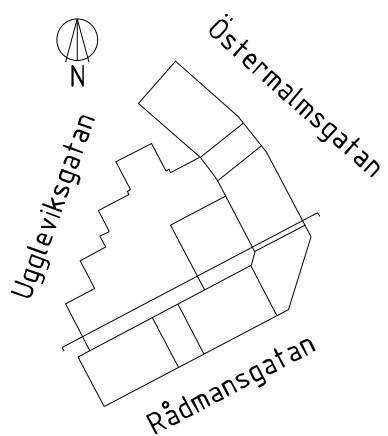
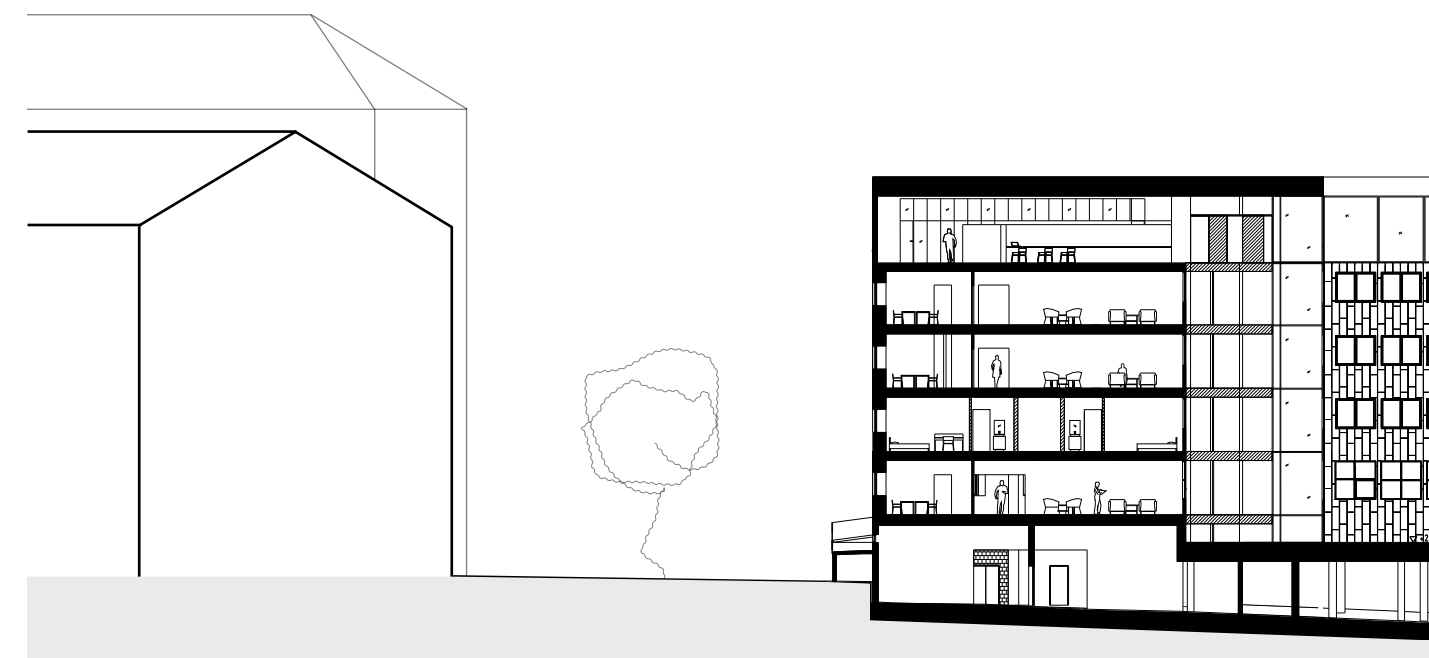
Rooftop - A new venue for the public and community in Östermalm.

3.32 Section drawings



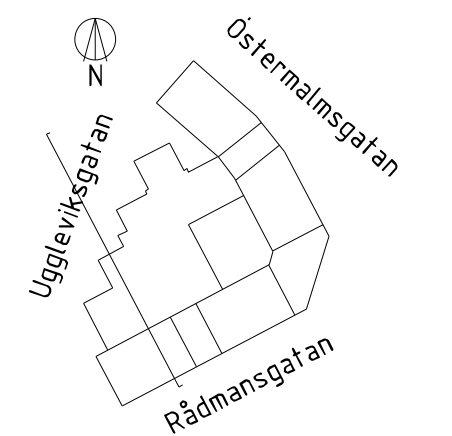
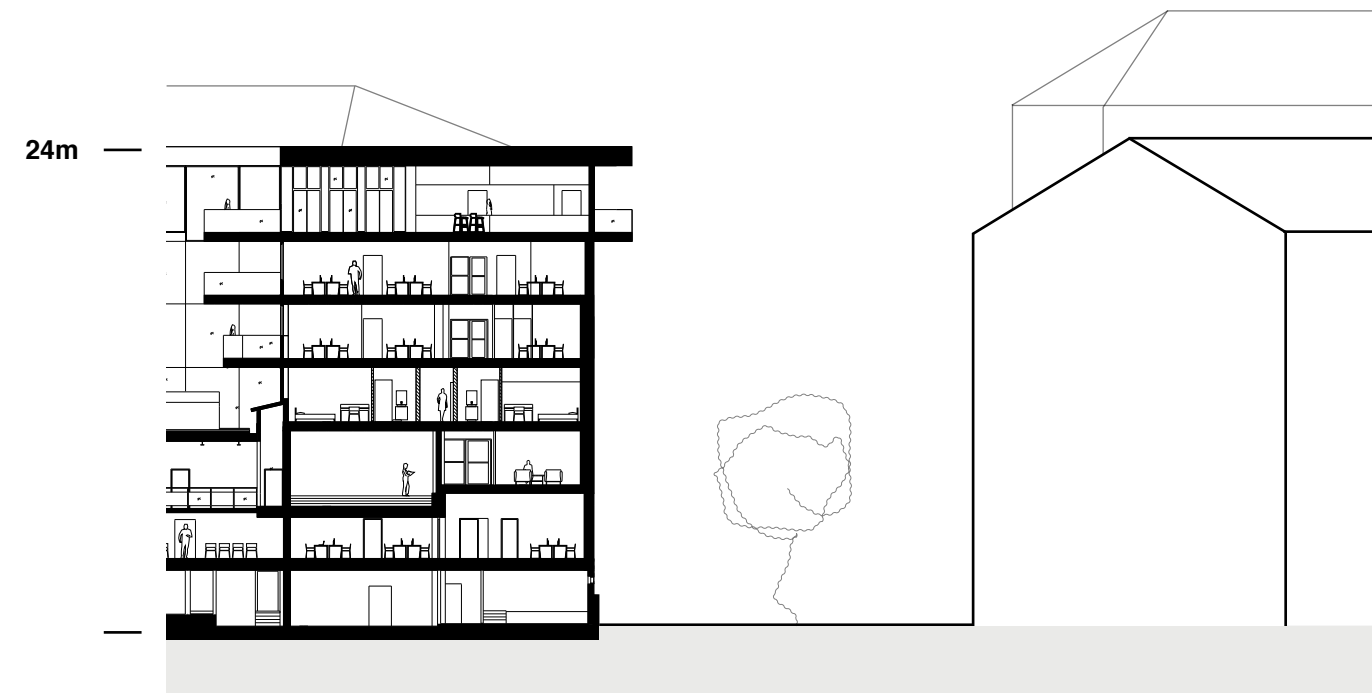
SECTION A-A
 Connection between the existing building and the additional floor.
 Section below shows the relation to the opposite building.

SCALE 1:200



SECTION B-B
 Relation to the existing building and the additional balconies and floor.
 Section below shows the relation to the opposite building.

SCALE 1:200

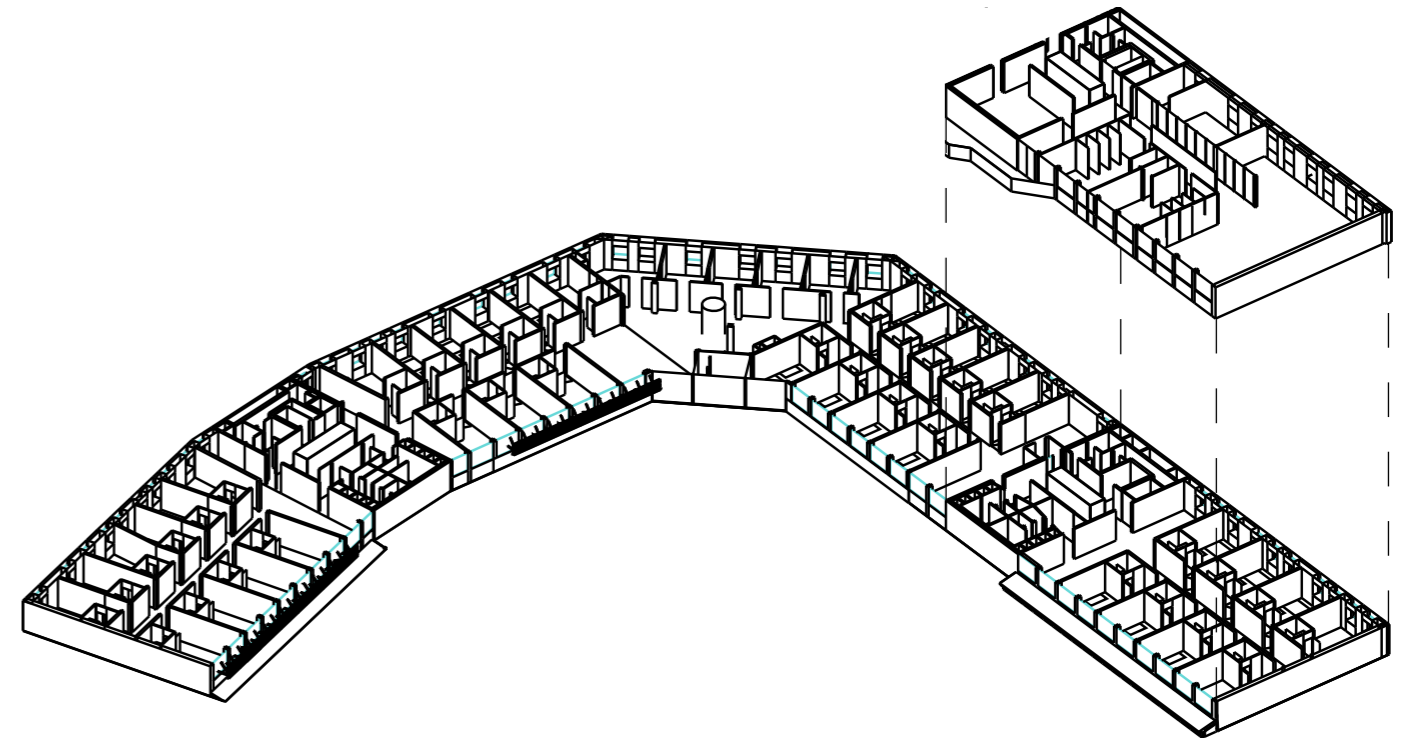




Courtyard

3.4 Medium scale - Additional features, program, circulation

In this section, the features that interconnects with the rest of the elements in the building are described starting with the additional functions hotel and gym that add to the whole experience of the hub. Diagrams that present the program and circulation through the building is later presented.

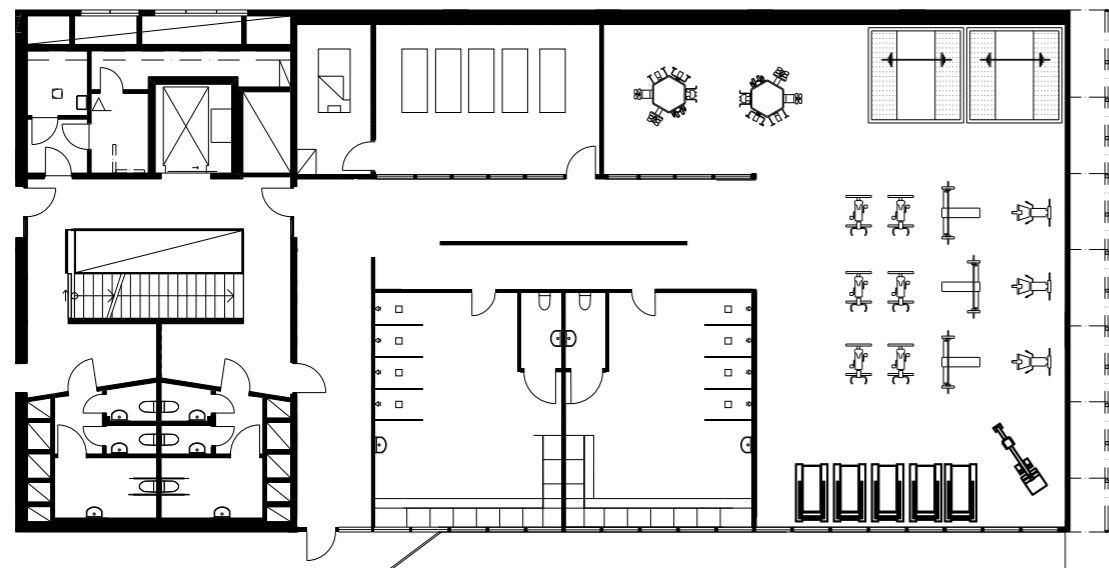


3.41 Hotel & Gym



Floor 2 - Hotel

Hotel rooms combined with office spaces are added for business travelers to enable people from far distances to connect with the community. It can also be used as group rooms for everyday use by members. There are dedicated group rooms and common spaces added on the same floor to enable easy interactions. The existing nearby elevators and stairs on each side of the building lets the users circulate smoothly between the floors.



Floor 3 - Gym

To increase activity and well-being among the members, a gym is added with all the necessary features and equipments and function independently. It can be used during lunch breaks when the time is short for example and it reduces the time spent to travel to and from a gym as well. The closely integrated elevator and stair contributes to the easy access.

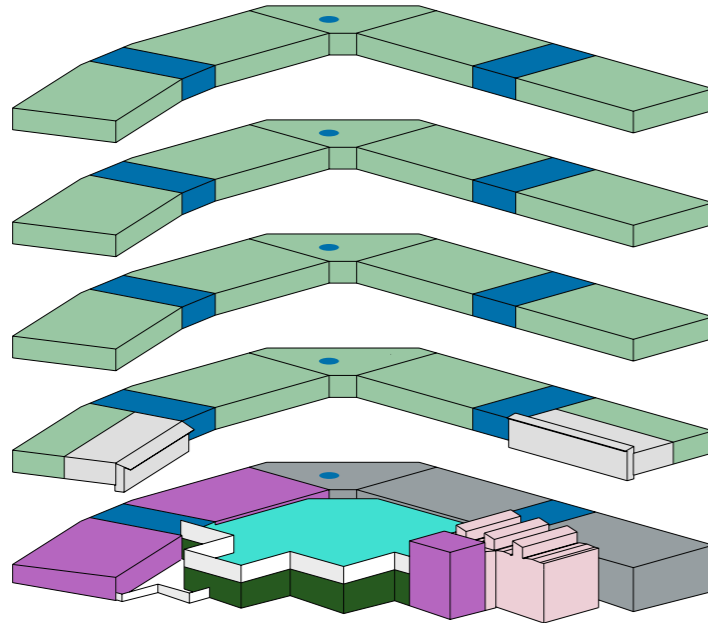


Hotel



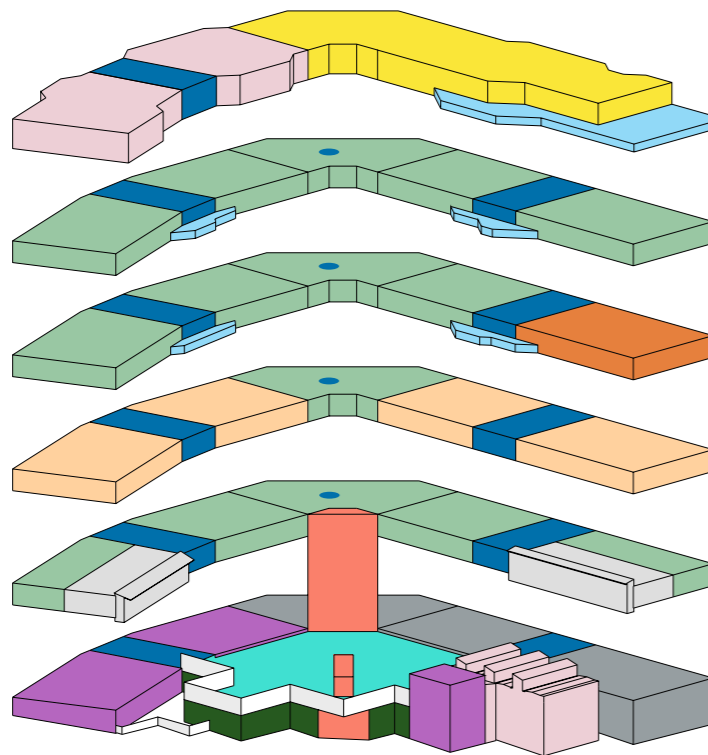
Gym

3.42 Programmatic diagram, circulation & functions



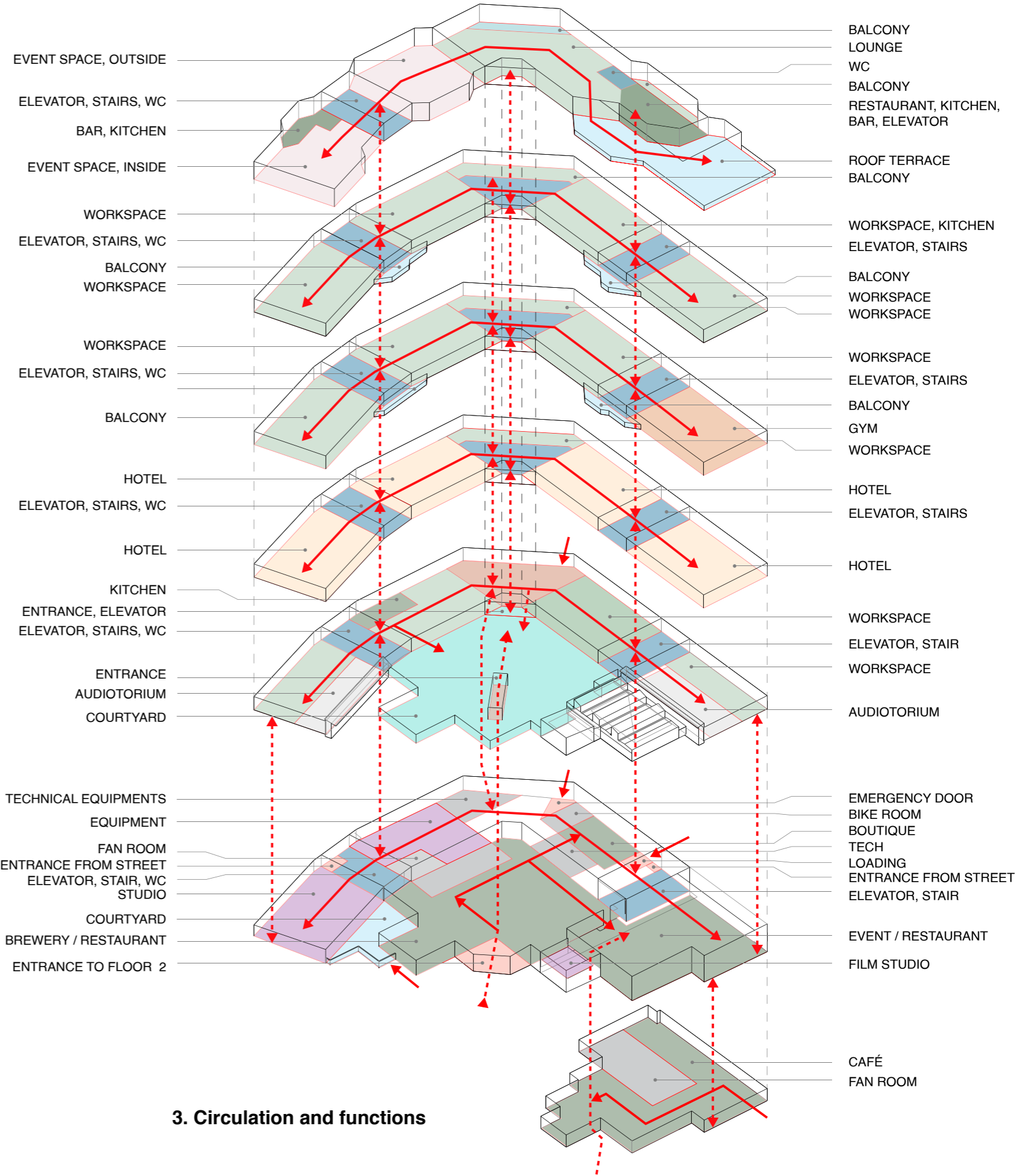
- Elevator, stair
- Courtyard
- Workspace
- Studio
- Event space
- Restaurant, Brewery
- Café
- Auditorium

1. Current state



- Elevator, stair
- Rooftop, balcony
- Courtyard
- Workspace
- Hotel
- Rooftop, restaurant, bar
- Gym
- Entrance, elevator
- Restaurant, brewery
- Café, restaurant, storage
- Auditorium
- Event space
- Studio

2. New programmatic configuration



3. Circulation and functions

3.43 User circulation, private/public zones

Examples of circulation path for three people with different roles to get a better understanding of how the spaces are connected and why.

STAFF (orange)

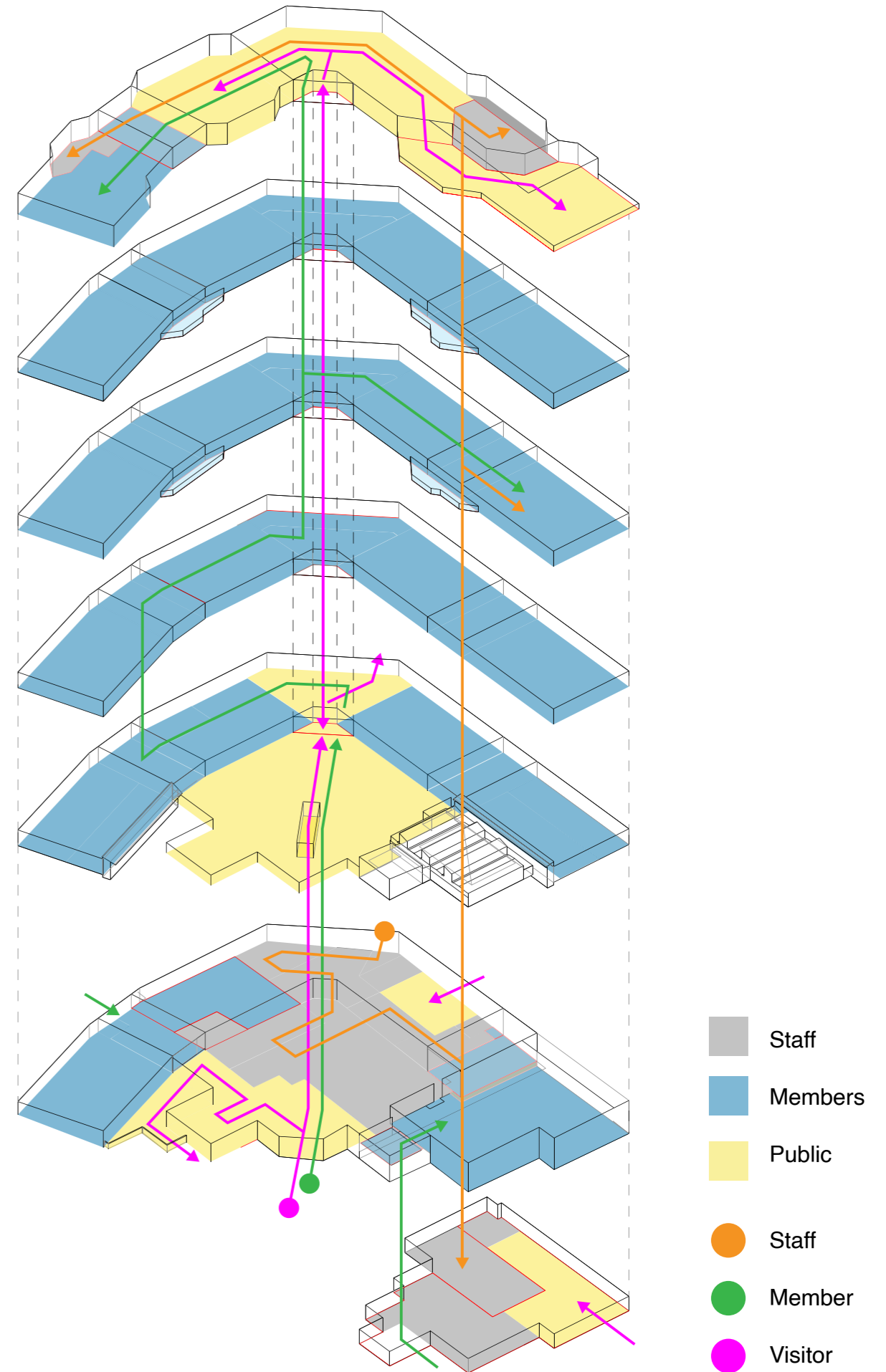
Person X: Can use the back door (current main entrance) to get to the staff area located in the bottom floor where the majority of equipments and systems are as well as personal rooms, WC, dressing rooms, etc.

MEMBER (green)

Person Y: Would use the new main entrance where the outside car parking currently are. The person can go directly to the restaurant or walk up one floor, pass the courtyard and access the building.

VISITOR (pink)

Person Z: The visitor can access the main entrance and the reception on floor 2 (the main entrance), or take the new elevator to reach the rooftop where there is a lounge, WC, the outside space, restaurant, bar and café which is indoors and outdoors.



3.5 Small scale - Interior and coworking spaces

The pandemic has changed how people view their work and home lives and has made a significant impact on workplaces which as a result is steadily being redefined and has led to an uncertainty around which type of work environment that is the most suitable type for people in the knowledge sector (Ceinar & Mariotti, 2021).

Studies that analyze the pre and post-pandemic effects on what people prefer as well as their attitude towards working in the office shows very divided results. Certain personalities thrive in open office spaces whilst other don't which is why people prefer different solutions (Casey, 2021).

To be able to understand what type of solutions that will work for A-house, I think it is essential to get a deeper understanding of the underlying design principles and methods that changes the spatial configuration in such ways that differentiates a "good" workplace from a "bad".

The opportunity that I see here is to improve and reconfigure the open office spaces in A-house and make positive change and discover what the solutions are to that to be able to transform the existing interior space to the optimal configuration and incorporate flexibility to enable further changes to take place for the next generation of users. In a building where more than 500 people circulate more or less everyday, I think it is important to consider the effects of environmental psychology to determine what people actually are in need of in workplaces as recognized methods can be used to decrease negative factors that can be crucial to the peoples mental healths (Kim & de Gear, 2013). which has impacts on workplaces such as A-house.

Coworking hubs and office hotels have a similar strategy when it comes to planning the interior space for their users. They often consist of open office spaces just like A-house and these kind of coworking spaces are very attractive to developers and businesses and can be seen throughout the inner city of Stockholm where there are many new similar projects (Mosstfeldt, 2019).

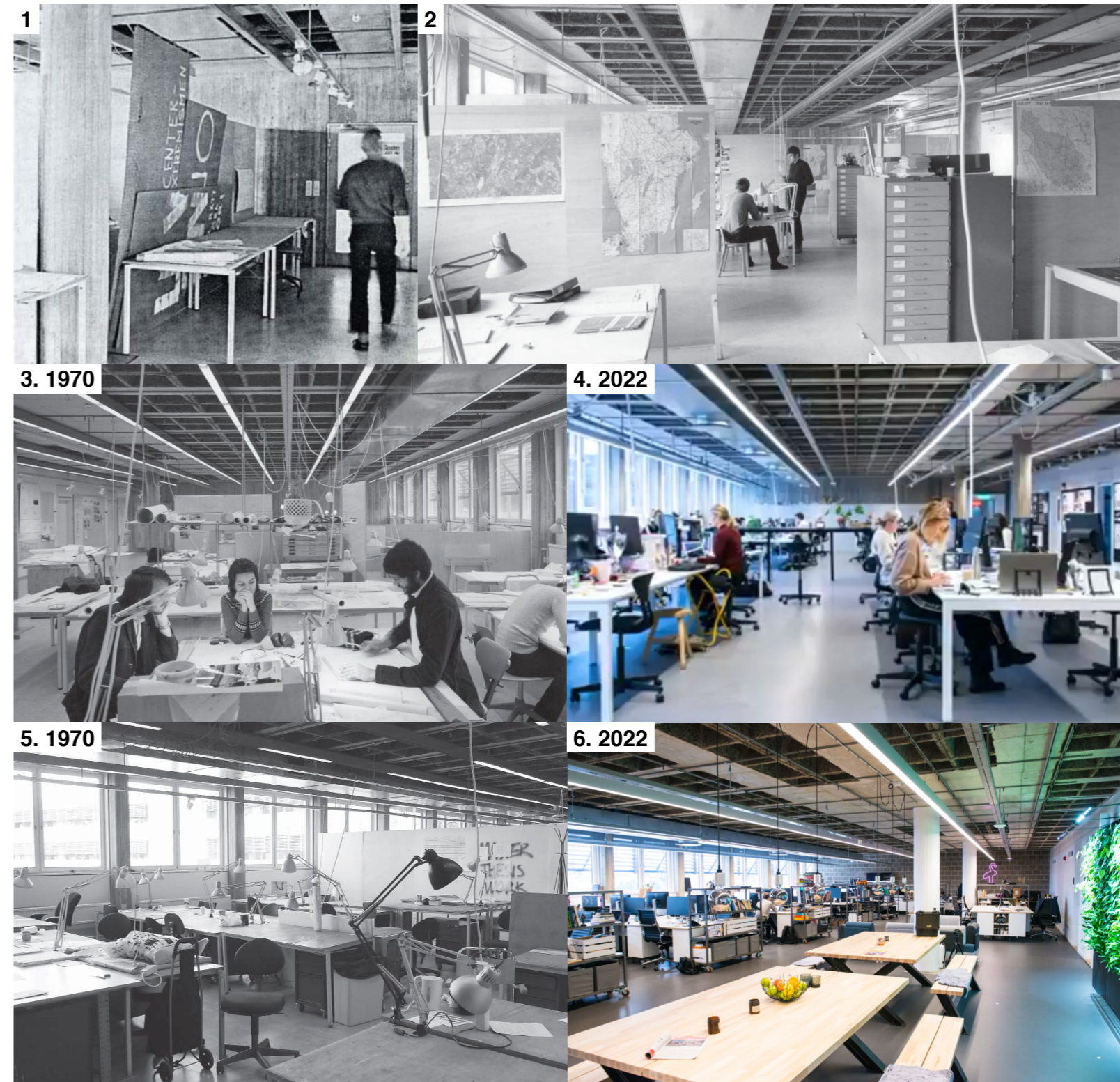
The open office plan is both criticized and embraced by the public. Developers seem to prefer the open plan offices (Burns, 2019) while consumers of them have dissimilar opinions.

Questions:

1. Which specific spatial configurations will be most suitable for A-house as a multifunctional coworking hub?
2. Which elements create the desired effects of a healthy work environment and what are the specific needs of the contemporary office worker?
3. Can the interior space be designed to suit all types of personalities?

(Fig 1, 2). The drawing rooms during 1970, the students give their view of the school. They were critical against the lack of privacy and did not think that the interior was flexible and that the rooms were too general. Partitions were created as a solution (Stockholm, 2022).

(Fig 3-6). The pictures below show the interior of A-house in the year 1970 and 2022. The open plan layout has largely remained unchanged (A-house, 2022).



3.51 Research study

In a 2013 survey by researchers Jungsoo Kim and Richard de Dear in their paper *“Workspace Satisfaction: The privacy-communication trade-of in open-plan office”*, 42,000 samples from employees collected in 300 offices and different companies where conducted about their office layouts. The results shows that open office plans are the most distracting and destructive to peoples work performances. The distraction by noise and low privacy where recognized as the main reasons of dissatisfaction in open-plan layouts. The collaboration between employees in so-called collaborative coworking spaces that developers gladly embrace the effects of, showed to be surprisingly low (Kim, de Deer 2013).

A study by Harvard Business Review shows that the interactions caused in open office spaces are only more frequent and not as meaningful as initially thought. The idea that interactions makes meaningful connections seems to be false because people simply choose when and how to connect with others by themselves. People also learns to ignore the ones they don't want to interact with and companies are failing to recognize these behaviors to be able to create better office spaces. These results where acquired by collecting data with tracking softwares (Bernstein & Waber, 2019). The study suggests that people need uninterrupted time to be able to focus for longer, moving teams into separate group rooms, reduce interactions with other companies, and make way for the types of interactions that increases productivity as well as decreasing the ones that don't (Bernstein & Waber, 2019).

The lack of privacy, security and variation in open office could possibly be solved by dividing spaces into more separate rooms, depending on the type of work that needs to be done (Uzialko, 2021).

Summary

- People feel distracted in open-plan spaces
- People need to be able to focus for longer periods
- Open-plan office not suitable for everyone
- Interactions are more frequent but not meaningful
- High noises, low privacy

In the survey (Kim & de Deer, 2013), the differences between the architectural spaces and their configuration where compared depending on how private their workspace was. The private offices outclassed open plan office environments in almost every aspect and especially in noise and privacy levels as well as proximity of other workers. The evidence representing the benefits of open plan offices are vague (Kim & de Deer, 2013). On the other hand there are extensive research papers which emphasizes the issues of open office configurations.

Studies based on the users in the workplace and laboratory studies presents that unrelated intelligible speaking from other workers lowers their working perfor-

mance for the ones who needs more extensive focus. Compared to private offices, workers believed they wasted about double the time and effort to finish tasks requiring high mental focus because of the distractions (Kim & de Deer, 2013).

The lack of visual privacy and exposure to high noise levels decreases motivation and workers experience that it is harder to close out undesirable attention to others. The lack of control of ones environment when working in proximity to other people also has a negative impact. Open plans may allow for more social interactions and communication with other teams and corporates, as well as more job satisfaction among workers but the low performances outdoes the benefits.

By comparing the upsides of different types of office configurations (for example open offices and the interactions) and the bad impacts (noise disruptions and privacy issues) we can get a better understanding of what creates good working environments. Depending on what type of office configuration the worker has, the needs will differentiate (i.e. a worker with a generous private office has other needs in comparison to a user in open office spaces (Kim & de Deer, 2013).

The survey investigates:

- If the users will feel more or less satisfaction depending on a set of factors or characterizations taken into account depending on how the values change in different office configurations.
- If the needs of the factors changes relative to the office types and configurations.
- If the pros of the open office plans like easier interactions and more collaborative spaces weighs up to the cons like noise disruptions and low privacy.

(Fig 4, 5). Factors, characterizations measured in the survey (Kim & de Deer, 2013).

- Workspace overall
- Temperature
- Air quality
- Visual comfort
- Noise level
- Sound privacy
- Amount of space
- Visual privacy
- Ease of interaction
- Comfort of furnishing
- Adjustability of furniture
- Colors and texture
- Building cleanliness
- Workspace cleanliness
- Building maintenance

Fig. 3. (Kim & de Deer, 2013).

Number of survey responses and general characteristics of different office layouts within the CBE POE database.

Office layout	N	%	Characteristics (Danielsson & Bodin, 2008)	
Enclosed private	11,381	26.6	- single room office - most equipment and amenities are in the room	
Enclosed shared	2753	6.4	- office work is characterised by highly-concentrated and independent - single room office shared by 2-3 people - people sharing tend to have a similar work or belong to the same project	
Open-plan	Cubicles with high partitions	16,136	37.7	- common workspace is shared by employees
	Cubicles with low partitions	9636	22.5	- workstations are often freely arranged in groups
	Open office with no partitions or limited partitions	2858	6.7	- partitions are usually installed at the individual workstations to provide some privacy
Total	42,764	100.0		

Of all 42,764 office layouts analyzed:

- Open plans and cubicles with high partitions - most common configuration (37,7%)
- Enclosed private offices (26,6%)
- Cubicles with low partitions (22,5%).
- Open office with no partitions or limited partitions (6,7%).
- Enclosed private (6,4%).

Fig. 4. As seen on the chart to the right, “Enclosed private” offices scored the highest satisfaction, followed by “Enclosed shared” offices.

- The rest scored with a similar average (cubicles with high & low partitions and open offices with no/limited partitions). The average score of “Enclosed private” is noticeably higher than other office configurations in all characterizations (sound privacy, amount of space, ease of interaction etc).
- There were even significant differences between “enclosed private” and “enclosed shared” offices (shown in “visual privacy”, “amount of space”, “sound privacy” and “noise level”).
- Open offices with no/limited partitions had a low average in privacy, and low proximity to others. All open plan office types scored negatively in “sound privacy”.
- High partitions (-1.5), low partitions (-1.5) and no/limited partitions (-1.1). Users were less pleased with the factor “visual privacy” the less personal privacy there was.
- The users were not more pleased with open spaces that created more interaction than in private office configurations (Kim & de Deer, 2013).

By large, the cubicles with high partitions got the lowest score in 13/16 of all the characterizations in the chart meaning they were the least satisfied users in comparison with the ones who had enclosed office spaces.

Fig. 5. Represents the Actual Percentage of Dissatisfied (APD) and sifts away the scores that were remarkably higher or lower to show more true values (very dissatisfied to satisfied).

- The figure shows that the open plan office configurations users were the most dissatisfied compared to enclosed where the “sound privacy” factor creates most dissatisfaction (High partition cubicles (59%), low partitions, (58%) and no/limited partitions (49%) (Kim & de Deer, 2013)
- Other issues such as “Temperature”, “Noise levels” and “Visual privacy” were also considered as remarkable issues. The chart for users “Enclosed private” were below 10% on most factors but scored more than 20% in “Temperature” which was a common problem for all layouts independent of privacy (Kim & de Deer, 2013).

Fig. 4. (Kim & de Deer, 2013).

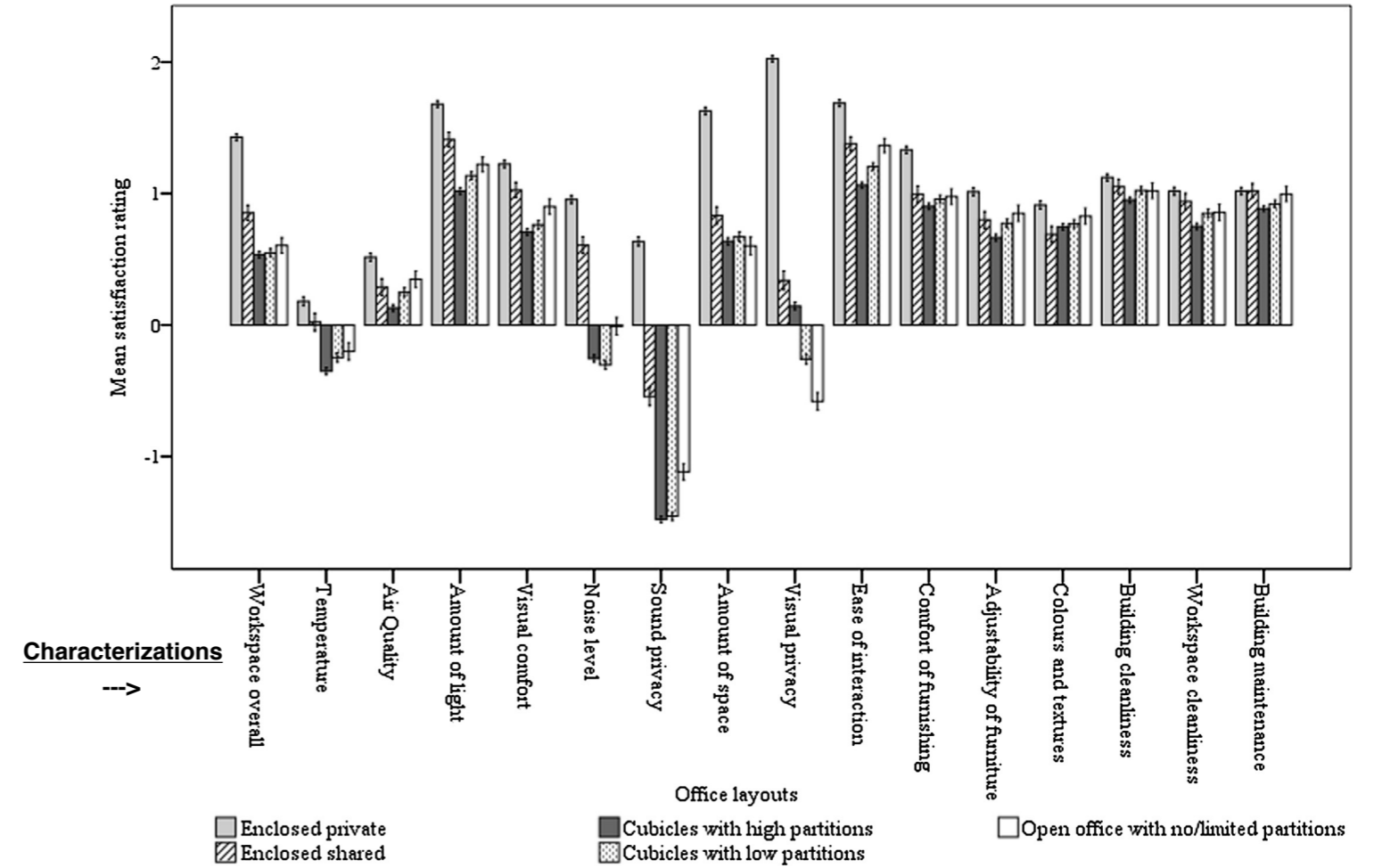
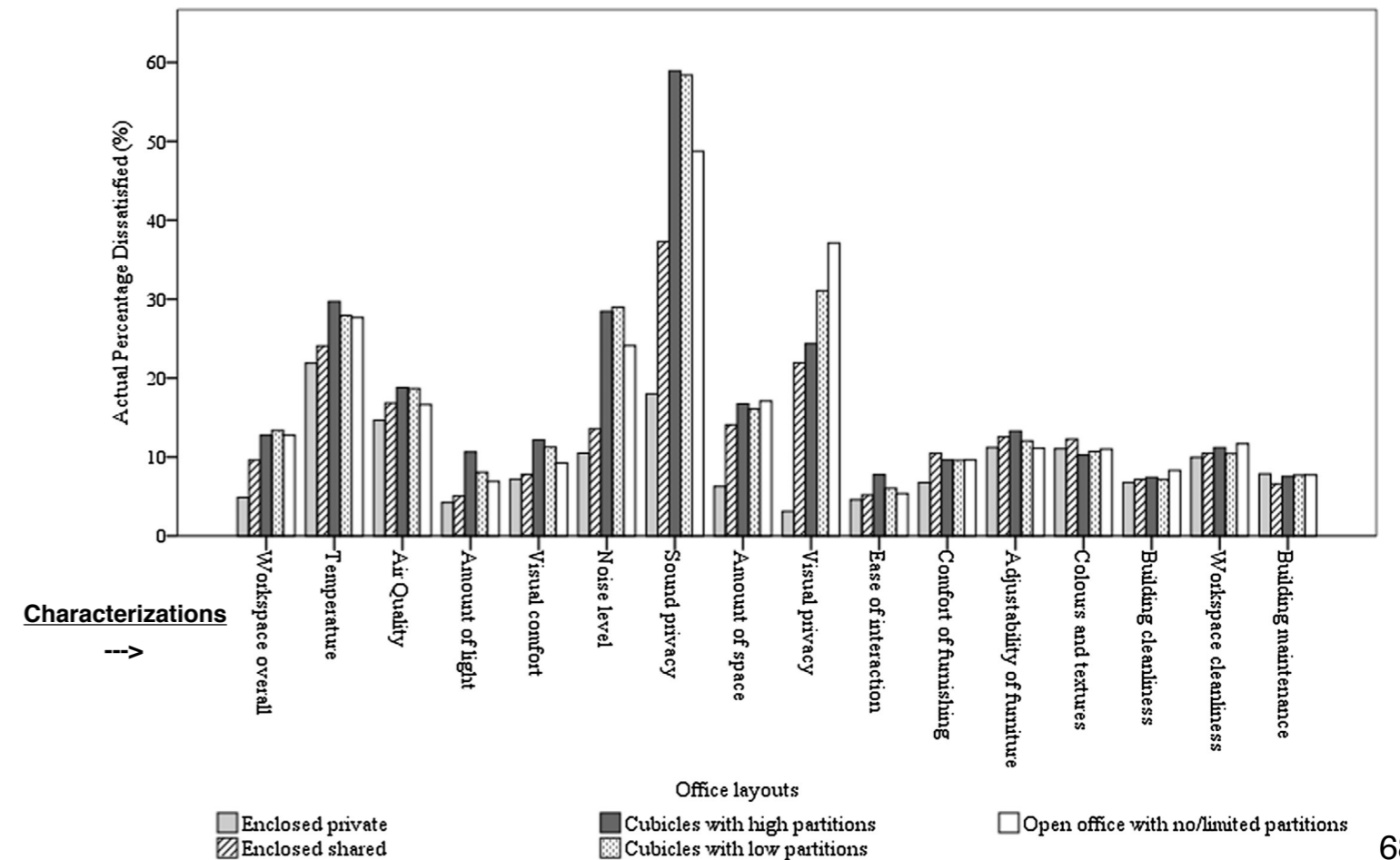


Fig. 5. Actual Percentage of Dissatisfied (ADP) for the characterization factors (Kim & de Deer, 2013).



- The amount of space gives the most overall satisfactoral variable across all office layouts and is valued higher for personal work as well as storage (Kim & de Deer, 2013).

- The cons with the open plan offices such as high noise levels and low privacy cancel out the positive factors such as easy access of interactions with other coworkers (Kim & de Deer, 2013).

- Enclosed private offices outperformed the other five office configurations and had the most satisfactory significance among users in the survey. Many private offices does not meet the expectations though in the sound privacy levels but generally has a high score.

- In all open office configurations, “temperature”, “noise levels”, “sound privacy” and “visual privacy” are causing the biggest issues but low “sound privacy” creates the most dissatisfaction (Kim & de Deer, 2013).

- The main issue of the open plan office configurations is the “intelligible speech” that hinders “cognitive processing” (Kim & de Deer, 2013). This survey shows that overhearing from other workers was the biggest issue and implies that partitions are not effective for the privacy no matter the height of the partitions (Kim & de Deer, 2013).

- “visual privacy” and “noise levels” are more important for open plan office users who are most likely to experience the factors from the charts and “ease of interaction” was more important for private offices.

Summary

1. uncertainty around which type work environment is the best, open plan offices and controversial
2. People prefer different work environments
3. Research can help to adapt office environment to a contemporary standard
4. The open plan layout was criticized by students in 1970. The work environments in A-house has remained the same.
5. Open plan offices are the most distracting and destructive to peoples work performances (High noises, low privacy).
6. Noise and low privacy main reasons in open plans
7. Interactions are more frequent but not meaningful
8. People need uninterrupted time to be ale to focus for longer
9. Group rooms reduced interactions should make positive effect
10. Problems can possibly be solved by dividing the spaces
11. (Kim & de Deer, 2013) the private offices outclassed the open plan offices in almost every aspect.
12. Distractions doubles the time and effort for workers in open plan layouts
13. Lack of control in a persons working environment has a negative impact when in proximity to other people.
14. “Enclosed private” offices scored the highest satisfaction, followed by “Enclosed shared” offices

15. There where even significant differences between “enclosed private” and “enclosed shared” offices
16. Open plan offices scored much lower than the enclosed
17. Cubicles with high partitions got the lowest score in 13 of 16 factors
18. “sound privacy” factor creates most dissatisfaction in open plan layouts
19. “Temperature”, “Noise levels” and “Visual privacy” where also considered as remarkable issues.
20. More space increases overall satisfaction for all office layouts
21. The cons cancel out the pros of open plan offices
22. Intelligible speech hinders cognitive processing, overhearing a big issue
23. Partitions are not effective

From data to design

The data conducted from the study can now be processed to determine what kind of configuration that would suit A-house the most to adapt it from a general workspace with acknowledged flaws since the year 1970, to a place that suits the contemporary knowledge worker.

To make the most positive overall impact, I will change the current factors of the plan layout in A-house that causes the most significant issues. Since the layout mostly consists of open plans, assumptions based on the conducted data and study will be made about the current floorplans to be able to make improvements as factors such as “sound privacy” and “high noise levels” is not measured in this case.

Factors that affects the workspace the most

- Low visual privacy
- Low sound privacy
- High noise levels

Factors/qualities that make overall positive change

- Amount of space
- Enclosed private offices

The factors can be regulated with changes in spatial design by adding whole walls to the current layout and divide the general flexible spaces to create more group rooms and enclosed offices. In short, more private rooms should make the most overall improvements to the coworking spaces.

Since floor 1, 3, 4, and 5 are based on the same plan layout, one floor (4) will be redesigned as an example of how all the floorplans could be reconfigured. The remaining floorplans can then be inspired by the first example and theoretically gain the same improvements.

2.52 Configurations

(Fig 3.) Current configuration - lvl 4

The current space is measured by the factors:

- Workspace overall (average)
- Sound privacy
- Amount of space
- Visual privacy
- Noise level

See fig. 2.

(Fig 4.) New configuration - lvl 4

1. Workspace overall: All layouts improve
2. Sound privacy: Less open offices with limited partitions - higher overall satisfaction.
3. Amount of space: More enclosed offices creates less proximity to other coworkers, personal privacy, more space and overall higher satisfaction.
4. Visual privacy More partitions decrease workers from unintended/unwanted observations.
5. Noise level: Less high noise levels from more divided spaces.

Dedicated spaces for social interactions is added where the circulation is higher (near kitchen, elevator, stairs and open rooms).

Enclosed private

The enclosed private offices is the most private and quiet workspace. It can be suitable for the staff of A-house who needs individual spaces. The employees can leave their things and set up meetings with other people too. Full control of work environment.

Enclosed shared

Is not as private but still allows one or two people to collaborate without any disruptions from other coworkers and have control over their environment.

Open office with no/limited partitions

Suitable for larger group/teams/workshops/meetings who needs extra space or be able to cooperate but privately.

By creating spaces that have different sizes and capabilities, I believe the individual or group can have more control over their work environment which I think is a way to incorporate flexibility instead of handing the responsibility of defining large open spaces to the end users and/or developers/community.

Leading questions of this chapter (p.66):

1. Which spatial configurations will be the most suitable for A-house as a multifunctional coworking hub?
2. Which elements create the desired effects of a healthy work environment and what are the specific needs of the contemporary office worker?
3. Can the interior space be redesigned to suit all types of personalities?
 1. Since the enclosed private office is the best performing configuration, perhaps the answer is to only incorporate those, but that would not work out in a building where there are small to large groups of people who need to work separately or in the same room. I believe that a combination of open, enclosed and private spaces would create the optimal setting as a multifaceted building like A-house.

2. Privacy, amount of space and noise control seems to be the most crucial and preferred factors for high performing working spaces. Elements such as walls and windows are then shaped to control these factors which is determined by the type of use/functions needed for the end users.

3. Considering the aforementioned data and the differences of them, I believe that the interior spaces can be designed with a combination of these configurations to support more people with different demands and needs in which they will more likely be comfortable to spend time in the building for longer periods of time. They may not suit all personalities, but many more.

Fig 1. Indicates the **dissatisfaction** rate in the different layouts where the “Open office with no/limited partitions” layout scores the highest in all the factors. (Fig 3.) presents the original layout of the floorplan (lvl 4) where the rooms are measured by the type of space and how big it is (sqm). The majority of the layouts are open spaces and therefore consists of low performing spaces in the original plan.

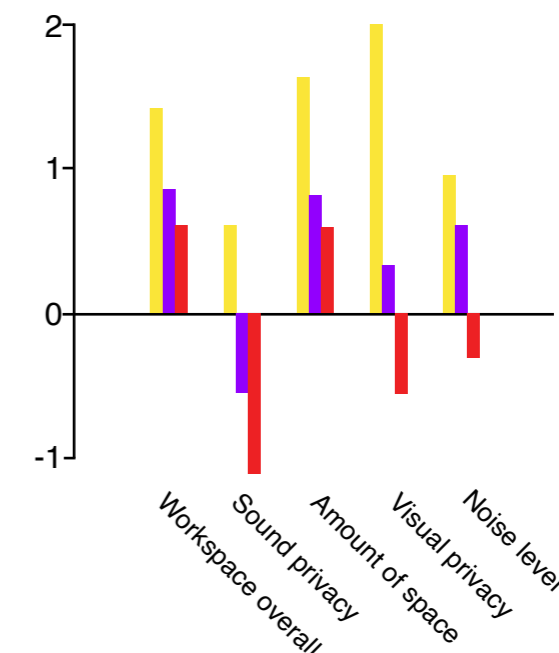
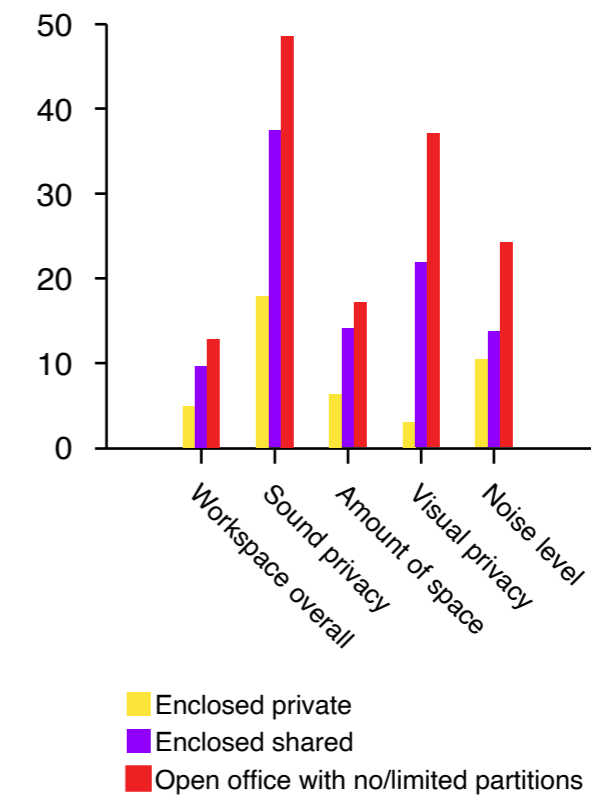
Actual percentage **dissatisfied**

High percentage=most dissatisfied (Kim & de Deer, 2013).

Fig 2. Indicates the satisfaction rating between the different layouts where the “Enclosed private” and “Enclosed shared” has the most positive rating which the new configuration (fig. 4) has incorporated more of which should result in a overall higher performing office layout.

Mean **satisfaction** rating

High=satisfied (Kim & de Deer, 2013).



(Fig. 3) Original spaces measured:

- Open plan office with no/limited partitions: 1088 sqm
- Enclosed shared: 445 sqm
- Enclosed private: 10 sqm
- Open social spaces (unintended): 0 sqm (1088 sqm)

(Fig. 4) New spaces measured:

- Open plan office with no/limited partitions: 200 sqm
- Enclosed shared: 461 sqm
- Enclosed private: 104 sqm ≈10x. (1-2 desks)
- Dedicated spaces for social interactions: 408 sqm

Floorplan 1-6

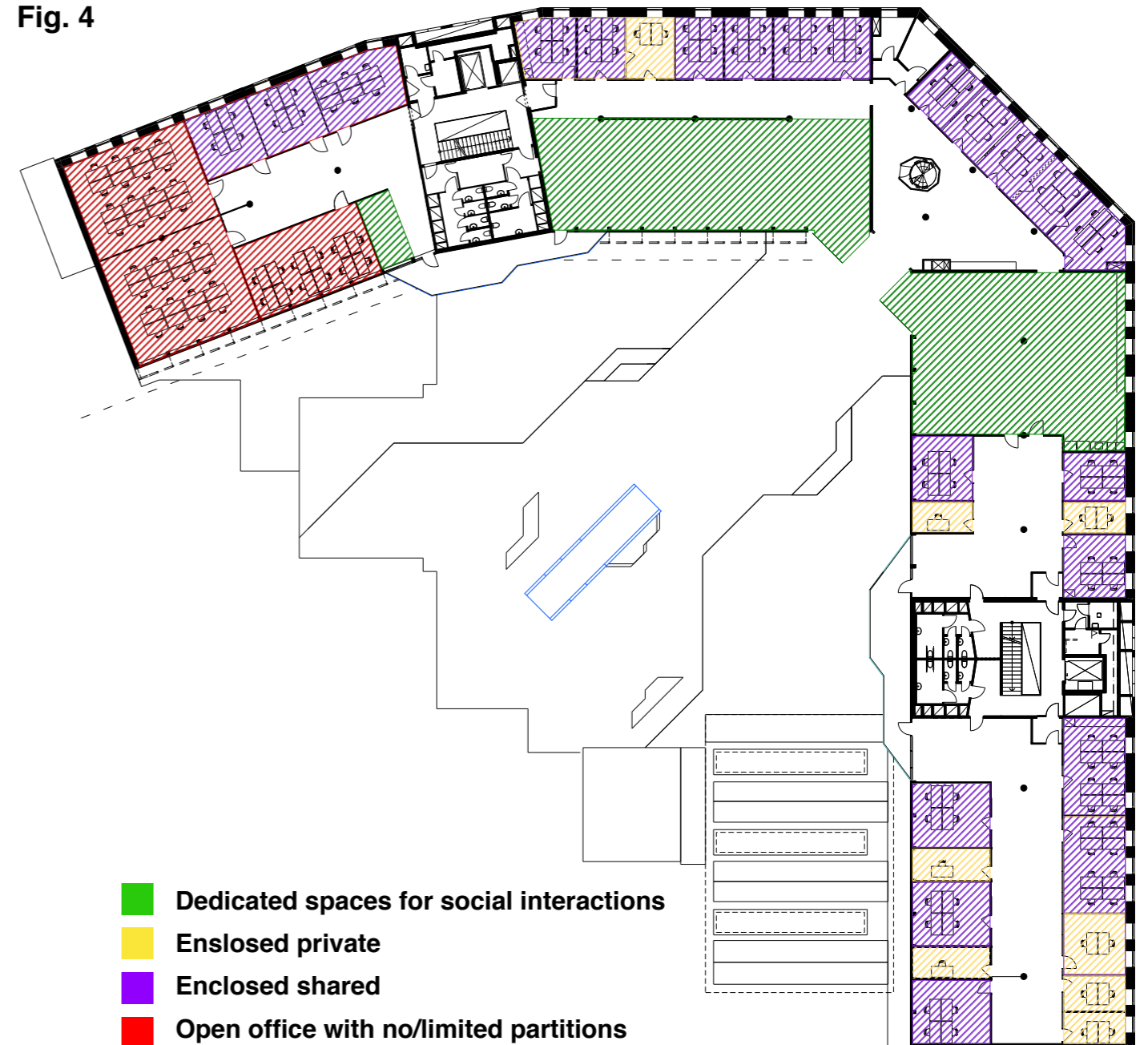
The remaining floorplans are presented in the following pages where every floor is customized and adapted by earlier factors and definitions in mind depending on the floor. The design pattern is implemented as well in parts of the interior spaces but is mostly present in the additional floor (lvl 6) where the new design is an interpreted version of the preexisting structure and form.

The majority of the interior spaces generally consists of square-like rooms. Since this pattern is relatively easy to reconfigure and work with, I have decided to maintain the square design pattern to allow for further changes since functional change is near unavoidable. It will possibly ease the process of future reconfigurations and support the next generation of a coworking hub and its new demands.

Fig. 3

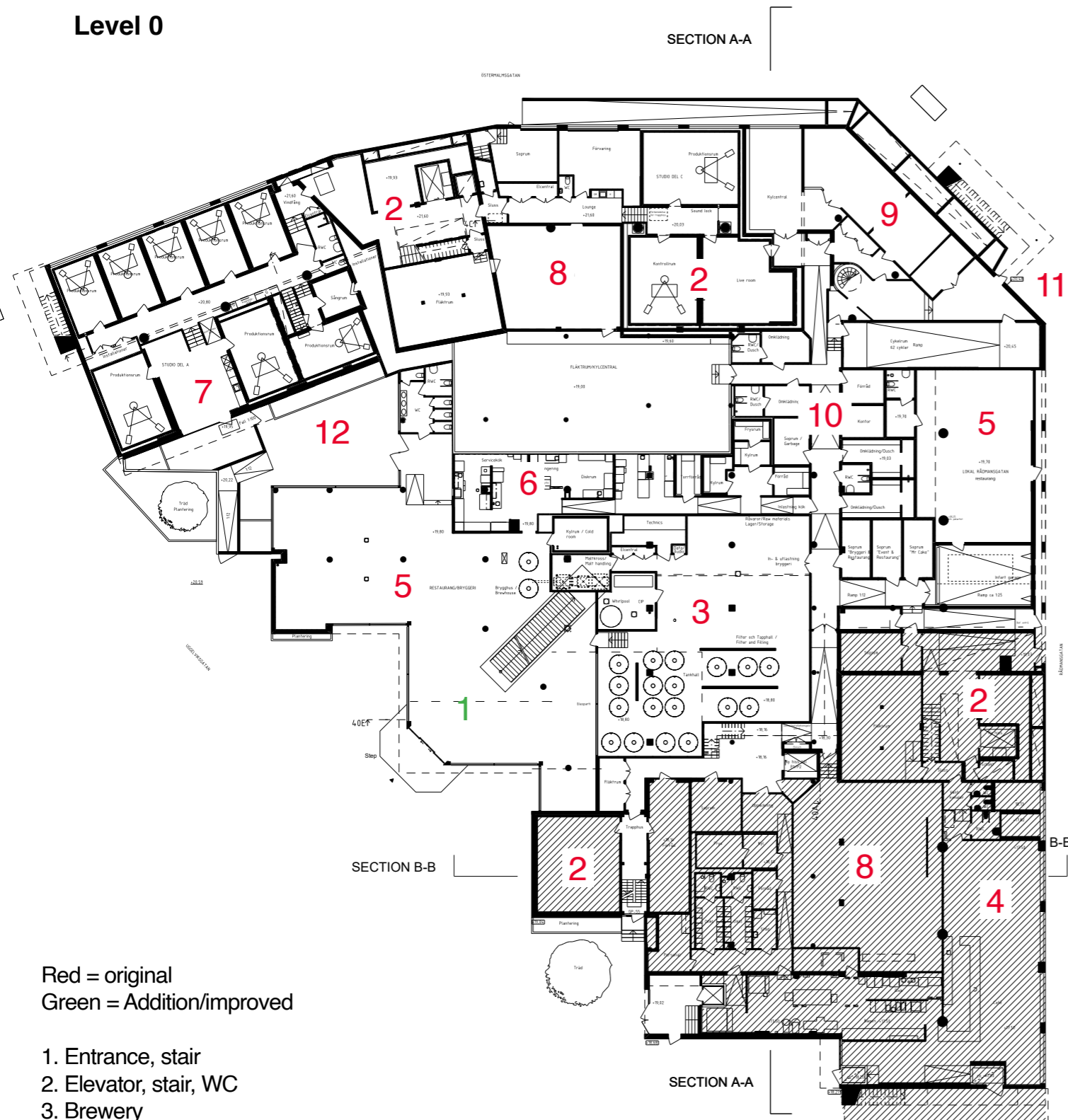


Fig. 4



3.53 Floorplans

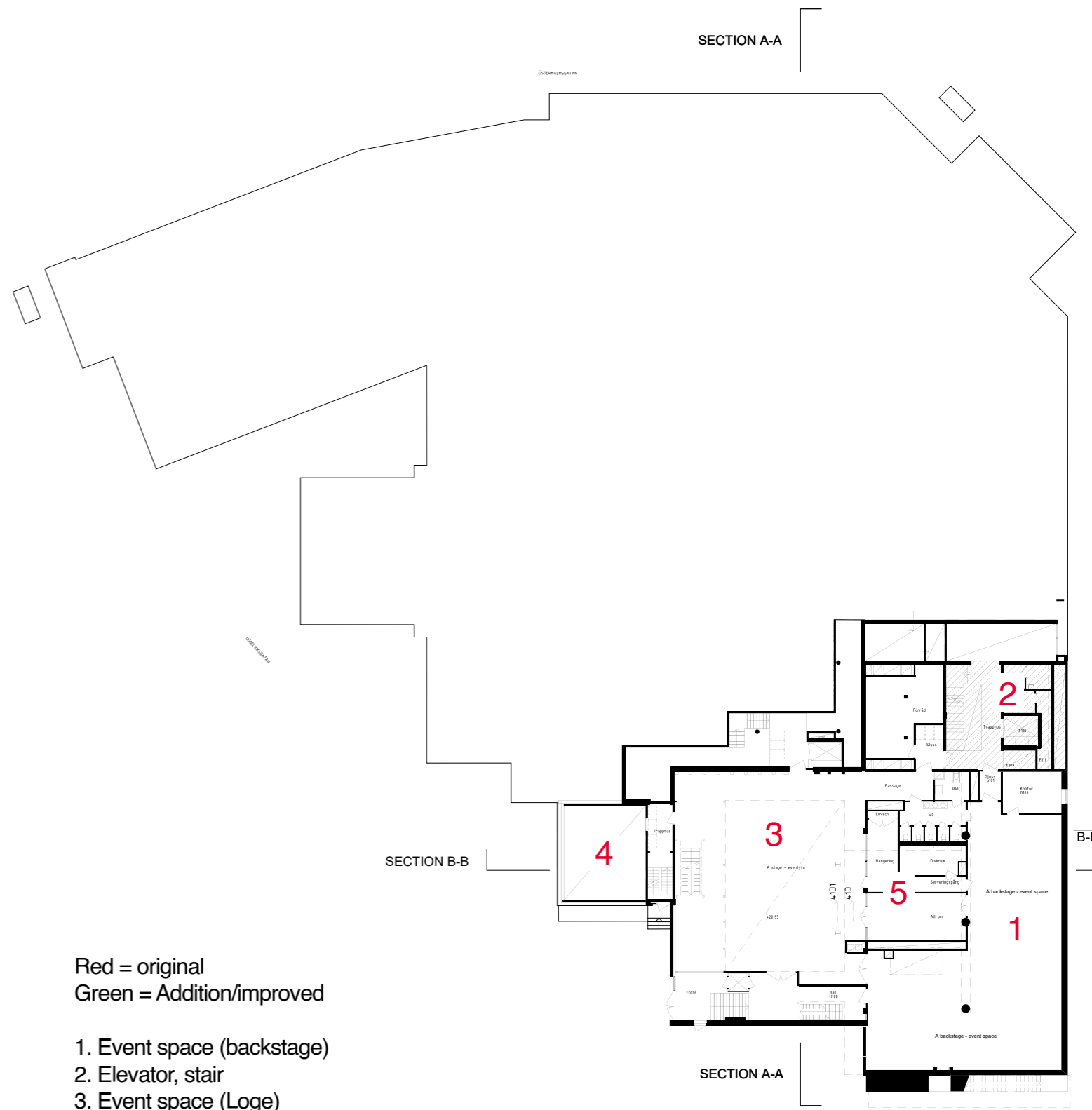
Level 0



Red = original
Green = Addition/improved

- 1. Entrance, stair
- 2. Elevator, stair, WC
- 3. Brewery
- 4. Café
- 5. Restaurant area
- 6. Kitchen
- 7. Studio
- 8. Fan room
- 9. Technical equipments
- 10. Staff area
- 11. Emergency door
- 12. Courtyard (brewery)

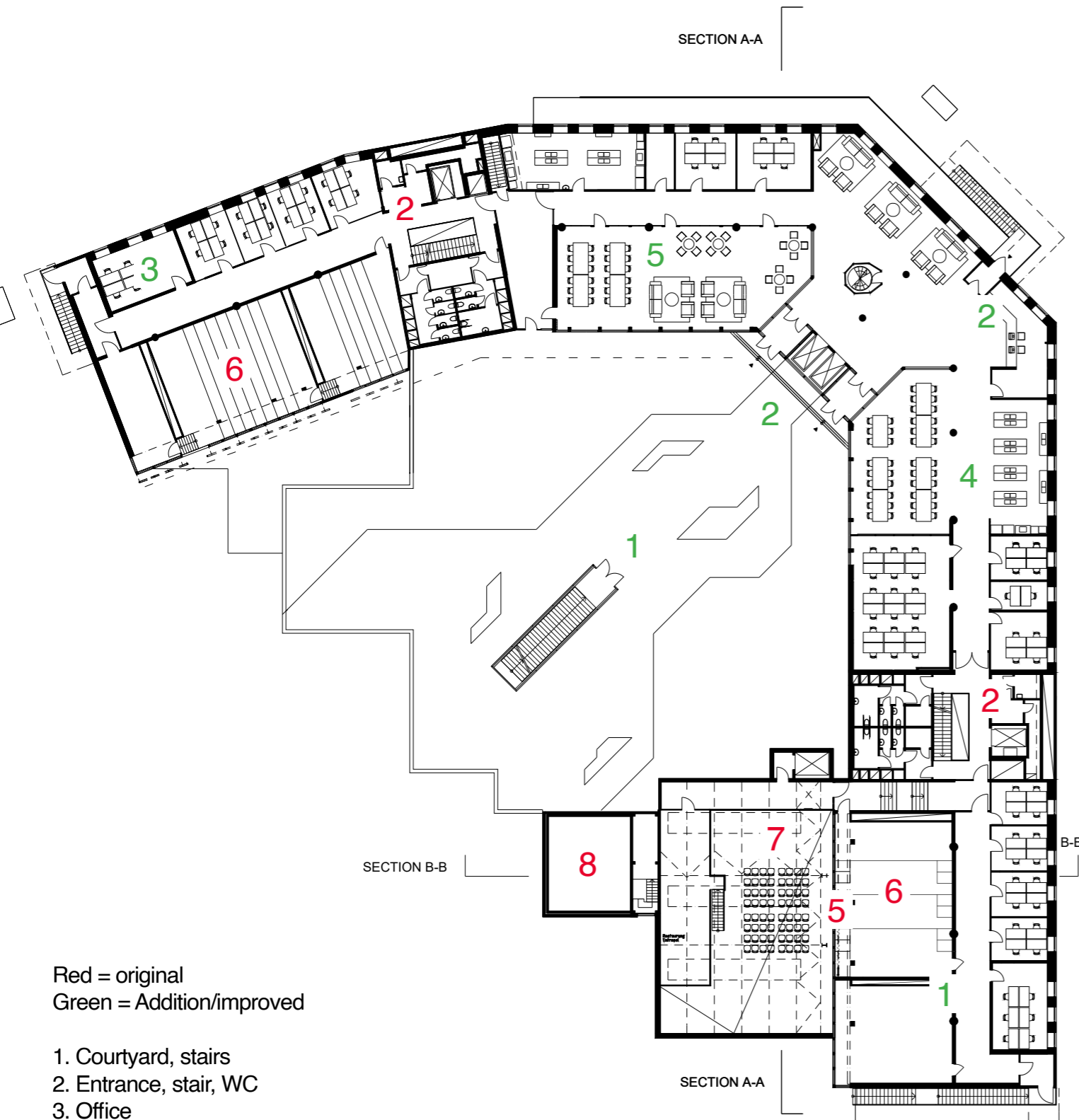
Level 1 - Event/studio



Red = original
Green = Addition/improved

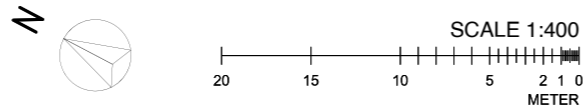
- 1. Event space (backstage)
- 2. Elevator, stair
- 3. Event space (Loge)
- 4. Studio
- 5. WC, storage

Level 2 - Workspace, lounge

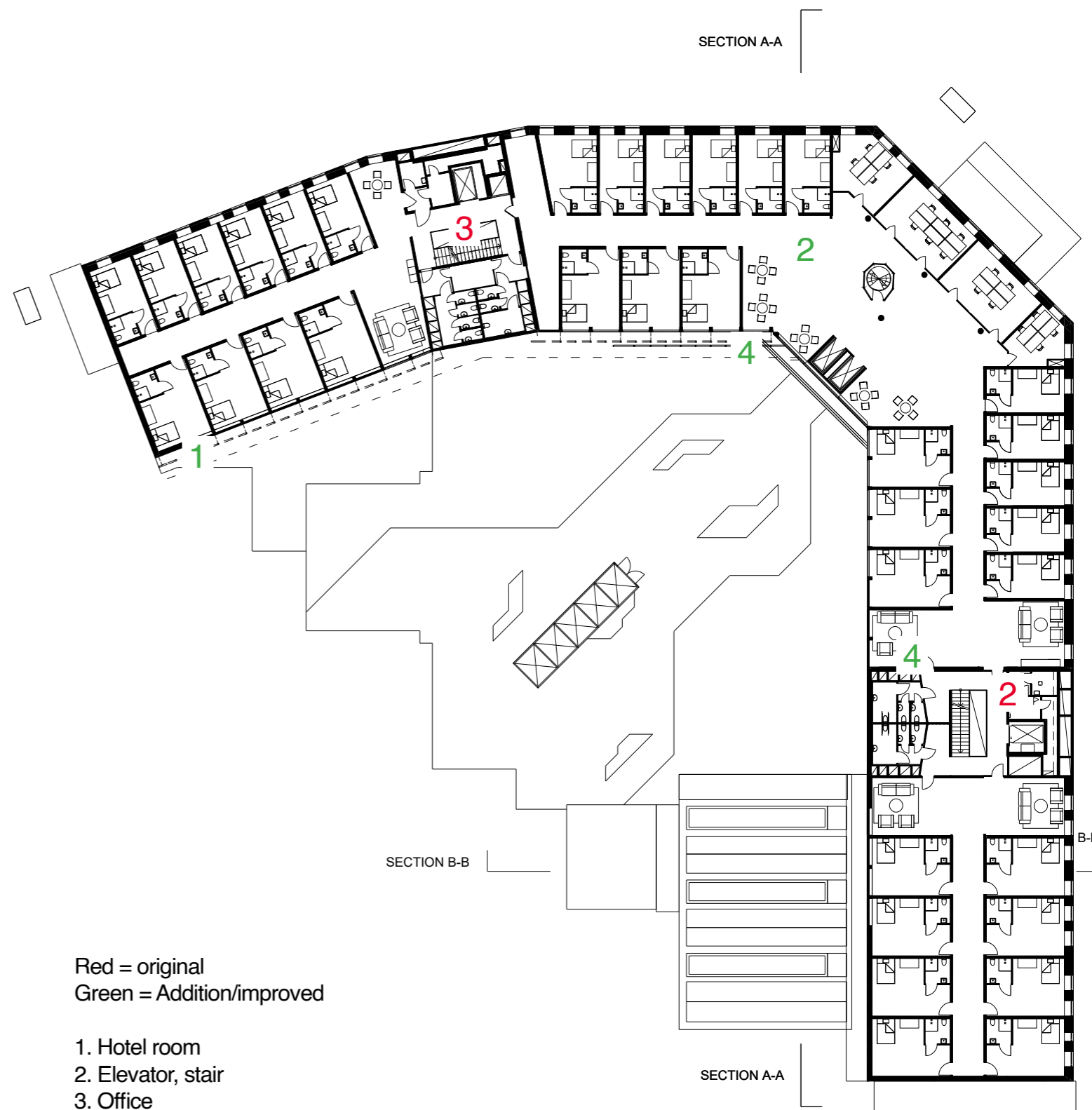


Red = original
Green = Addition/improved

- 1. Courtyard, stairs
- 2. Entrance, stair, WC
- 3. Office
- 4. Kitchen area
- 5. Social activity area
- 6. Auditorium
- 7. Loge, stage
- 8. Film studio
- 9. Elevator/stair

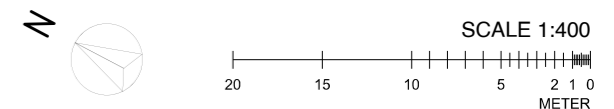


Level 3 - Hotel, workspace

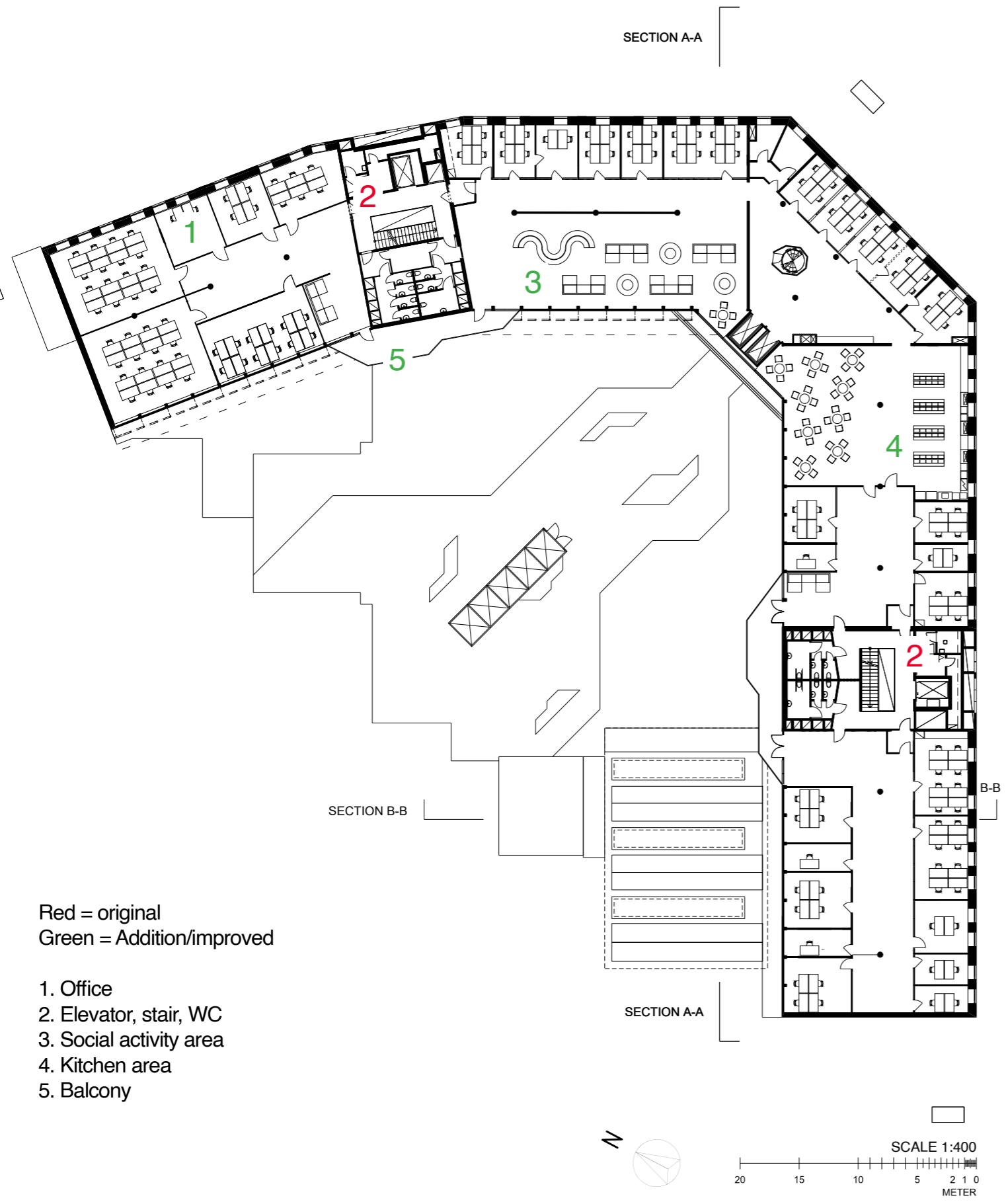


Red = original
Green = Addition/improved

- 1. Hotel room
- 2. Elevator, stair
- 3. Office
- 4. Social activity area



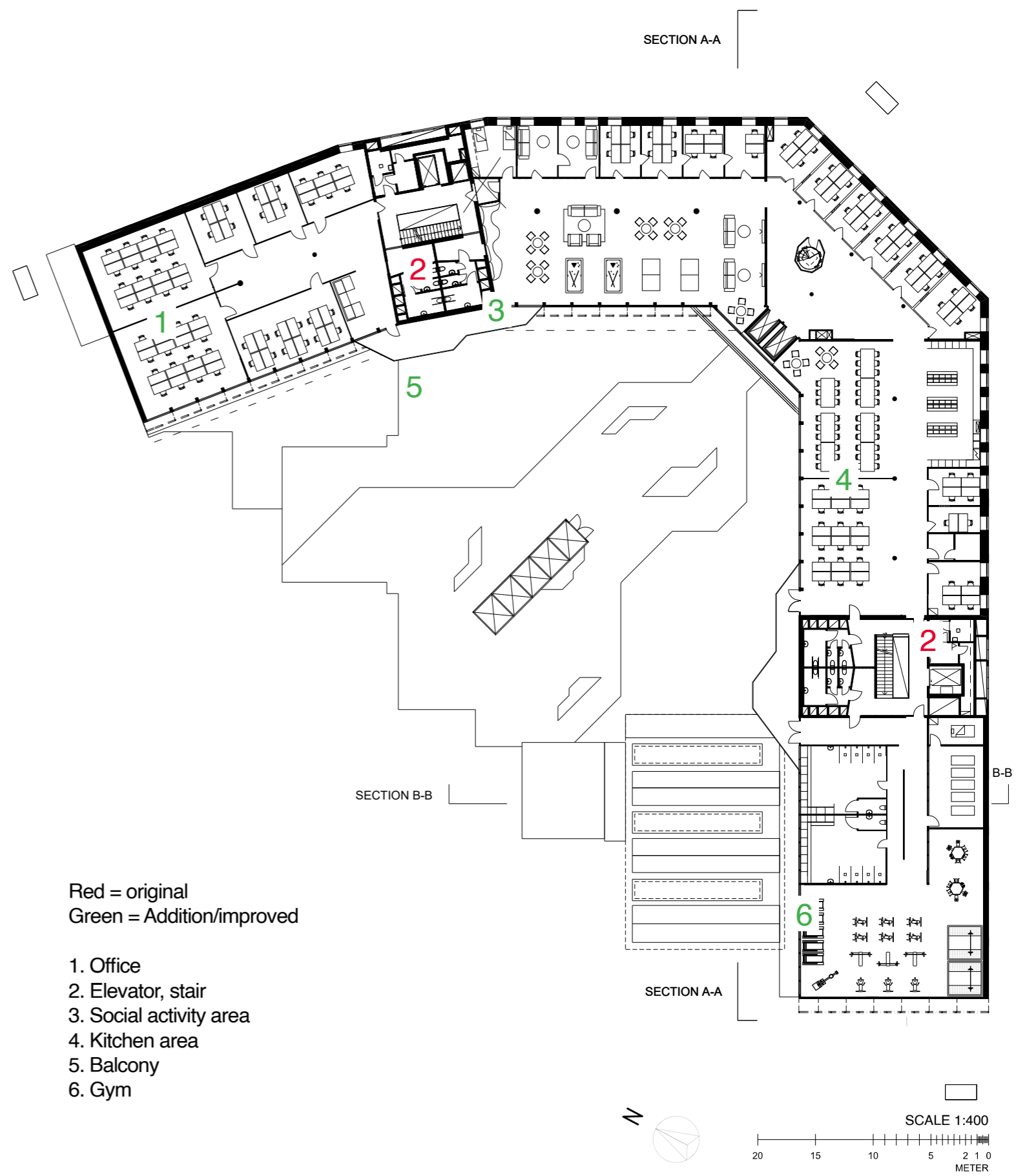
Level 4 - Workspace



Red = original
Green = Addition/improved

- 1. Office
- 2. Elevator, stair, WC
- 3. Social activity area
- 4. Kitchen area
- 5. Balcony

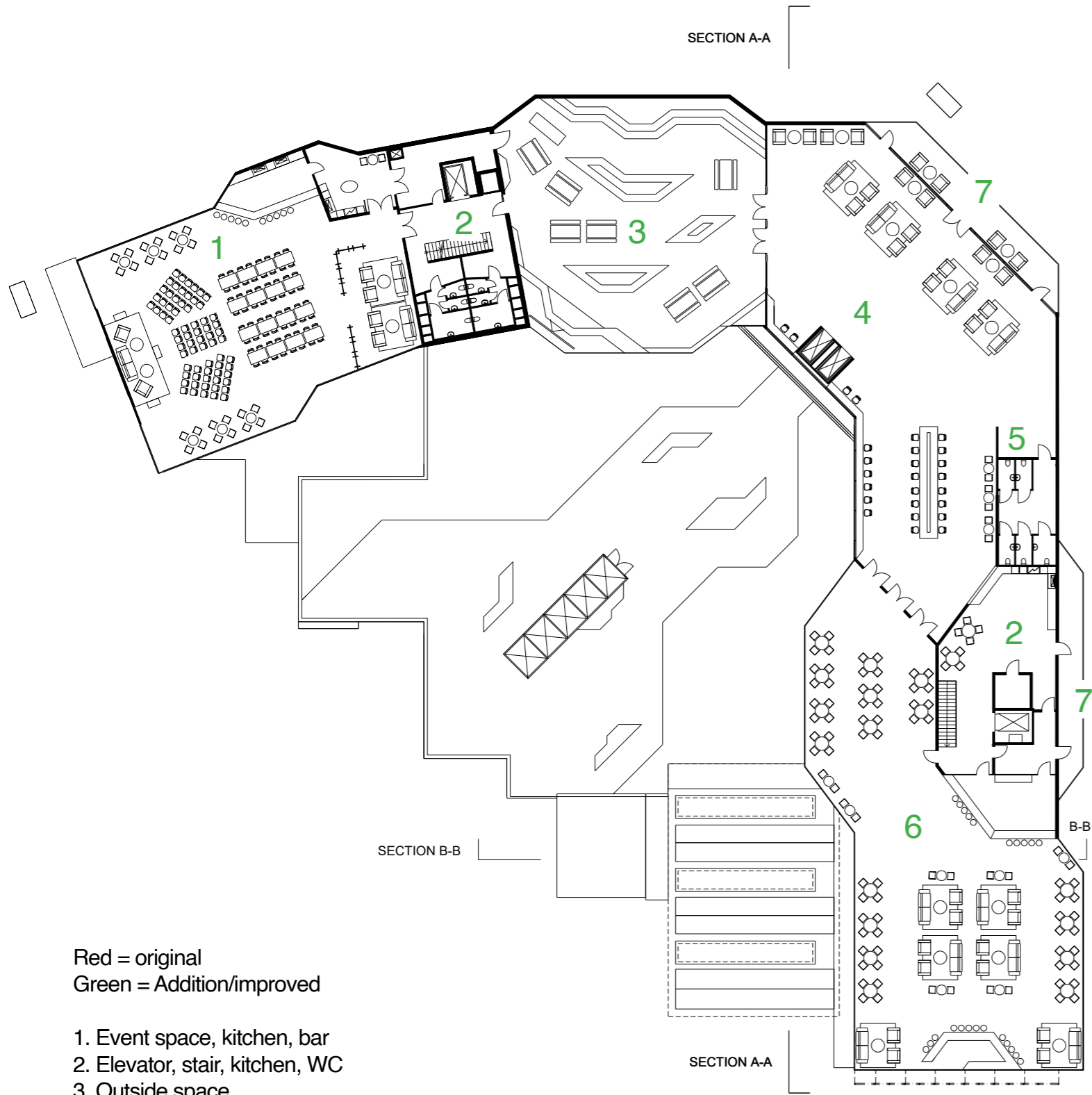
Level 5 - Workspace, gym



Red = original
Green = Addition/improved

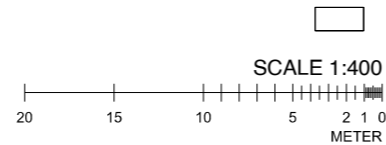
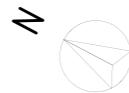
- 1. Office
- 2. Elevator, stair
- 3. Social activity area
- 4. Kitchen area
- 5. Balcony
- 6. Gym

Level 6 - Rooftop



Red = original
Green = Addition/improved

- 1. Event space, kitchen, bar
- 2. Elevator, stair, kitchen, WC
- 3. Outside space
- 4. Lounge, elevators
- 5. WC
- 6. Restaurant, bar
- 7. Balcony



3.55 Insights III

The big challenges of the design development process has been to apply the adaptive reuse methods and theories while improving the building to its context. The development phase required a lot of earlier observations and data inputs to take the most suitable actions though the additional floor, entrance, elevators and balconies was a more straight forward process since there was a lot of space to work with and could therefore improve rather simply and quickly to increase the overall capacity, flexibility and accessibility.

The programmatic change made it challenging to assemble the existing structure with the new additional elements and features so that they could interact with each other and create a good flow throughout the building.

The additional floor could then be developed to host the new features and take form with the design pattern in mind. The layout had to be designed so that there is just enough space and not too much of it for each function while interacting with the nature of the site such as the sun-path and views. The new entrance and stair had to create a good flow into the building but was prevented by the interior walls of the brewery/restaurant on the ground floor which was solved by removing them to make way for the stair that cuts through the courtyard and leads to the building.

The interconnected elevators/entrance had to harmonize to the existing structure and shapes which was made by matching the style of the facade and the geometrical shape of the building for a more discreet look. The balconies were created with the design pattern in mind to align with the original form.

Another great challenge was to design and reconfigure the interior spaces of the coworking hub where all the different functions and features of each floor had to fulfill the needs of the community and uplift the experience as a whole. This could be done by studying and observing the issues of A-house along with theories relative to workspaces.

The issues of the open plan layouts were improved based on the study and a new interpreted generation of the workspaces could be developed though it was difficult to decide which factors to work with since there are no definitive answers to how the spaces should function and look like to benefit everyone, but the study and the data retrieved from it were used as guidelines and helped to improve and develop the interior spaces that theoretically should enhance the coworking hub to a “better” standard.

In practice, I believe that the experiences could be completely different and deviate from the goals of the thesis and can only truly be determined with the real building.

Discussion

Coworking hubs in Stockholm

The results of the adaptation and improvements of the building has led to a reinterpreted generation of a multifunctional coworking hub that activates the immediate neighbourhood, district of Östermalm and the city as a whole a little more than before. It has become a place of venue that serves the public audience at a greater scale in a more varying way. I believe that the upgraded workplaces of A-house can influence other similar establishments which would perhaps lead to more coworking hubs that shares the qualities and experiences.

Flexibility

In this case, flexibility was meant to provide a variation of spaces and features that would improve the building as a whole both on the exterior and interior. The features that support more people and a larger target group would create the effects which was made by creating specific features that connect and interacts to the context of the site, spaces, layouts and rooms meant to function for certain tasks instead of providing large open and spatially undefined spaces.

Additional features

The original architect designed the building to be minimalistic, brutalistic and was intentionally made not to appear exclusive compared to its surroundings. There were even large open spaces throughout the building for the students to define their environments. It is almost like the building was created to appear and function undefined as a whole and the intentions of the current community of retaining the original qualities and themes of A-house has not led to many distinctive differences to this day other than re-imagining the existing spaces. As I see it, the additional features has given more definition, purpose and amplified the current experiences.

To summarize, the new improvements of A-house would transform it into a place where people can do common duties and more all in one building. The additional features benefits the city, neighbourhood, the individual, the traveler and improves the everyday life for people. The building creates new spaces for meetings for the community and the public audience by the relatively resource effective and efficient adaptation. Holistically, it evens out the load of people who wants take part from the benefits of multifunctional coworking hubs in the city in our newly defined lives.

The workspaces

I was surprised by the fact that open plan office layout differentiates so much in terms of performance and comfort level to the end user which has a big impact on ones everyday life. Workplaces are environments where people spend a lot of time and to find out that the original layout consisted of “flexible” spaces that was criticized since the 1970’s by the students was an early indicator that there were issues and that the current configuration more or less consists of open plan spaces discloses that the issues has not been resolved ever since.

We have the skills to provide spaces for all kinds of physical objects in our societies but perhaps not so much for the mental state. In that case, the flexibility is perhaps

found when the users can choose which mental state to appear in to enable different kinds of focus rather than providing large open spaces to let the end users define them like in many contemporary offices. There should perhaps be an interplay in the spaces created to provide a sense of mental flexibility, physically and psychologically and provide the variation of spaces added to A-house that enables one to focus for deeper and longer if needed or to collaborate and interact with more people simultaneously.

Future potential

Smart buildings

With higher demands on energy efficiency and features to support and satisfy the end users in coworking hubs such as A-house, I believe that the digitalization of buildings will evolve and contribute to creating improved functions, features and room configurations for groups and individuals e.g. by integrating modern measuring instruments and surveys to gather data about satisfaction levels and overall use of A-house for future research to predict optimized solutions.

When solutions are found and proved to work for A-house, it can perhaps be used to influence and encourage other coworking operators and developers in the city to improve their buildings, and would eventually start a competition and incentive among them to offer the best coworking hub, which should lead to an increased amount of improved workplaces to take apart from.

Prioritization of mental flexibility

If the working environments of A-house can change to satisfy the users, increase individual work performance and organizational productiveness by providing mental flexibility with spatial configurations, perhaps the importance of psychological well-being should be more observed and emphasized by people and operators of such environments in the future with the improvements suggested and further research in the field, as the effects seem to make a lot of positive change.

Reusing buildings

The adaptation showcases that an existing building like A-house with its historical significance, context and structure can improve to meet new standards in terms of practicality and make the best use of it. A step further in the process of the adaptation would be to study and propose how sustainable solutions that reduces the CO2 footprint during the reconstruction could be made to encourage developers to see the potentials and benefits in adaptive reuse builds, since the majority of the built fabric consists of older existing structures.

Conclusion

Question “How can an existing multifunctional coworking hub adapt to change to meet new current standards and beyond?”

Hypothesis “This thesis proposes that incorporating flexibility increases functional and overall performance of the building.”

The aim of the study was to explore how an existing multifunctional coworking hub in Stockholm could improve as a public venue to the city and the workplace for the community, by adapting the structure to meet new current standards and demands caused by post-pandemic effects.

In particular, I proposed a redesign of the building by analyzing it in its context, studied the principles of adaptive reuse and formed a design language to emanate from and substructured the design development process, where the building got additional features and overall enhancements based on collected data. With further research on coworking spaces, I could discover improved methods on how to create better working environments for the end users which resulted in a new generation of the coworking hub that supports the new demands.

The key points where that the building and the need of hybrid coworking hubs could in this case be solved by adding features that increases its capacity, opens up more to the public and makes it more accessible and versatile. Typical coworking hubs that provide flexible spaces and open plan layouts like the building in question, evidently causes major issues to the individual worker and affects work performances along with other problems, which could for the most part be solved by changing the layouts of the offices areas by creating more enclosed rooms that decreases the most disturbing factors such as high levels of noise, low privacy and proximity to other workers. By providing a variation of features to the building and office layouts with different qualities and sizes, the individual or group could be able to choose which mental state to appear in to allow for different levels of focus that creates a mental flexibility as well as physical.

I think that a deeper knowledge about the site and its users really helps to reveal important data to develop the most suitable solutions to a building that otherwise would have been very hard to discover and to get to the root of a problem. In this case I initially thought that “flexible” coworking spaces with open plan layouts would be the obvious solution to improve A-house because, it is so common among developers, so it must be good? The study by Kim & de Deer (2013) suggested that to be false which in this case could be confirmed by the results of the thesis.

The insights helped to not only improve the building but to reveal how some major issues of contemporary coworking hubs could be resolved and challenged the traditional concept. I think that further research on the subject will be necessary to perform in a time where coworking spaces are increasing in popularity, to support upcoming demands of the future as they are becoming a part of many peoples daily lives.

So, can an existing building adapt to change by incorporating flexibility to increase the functional and overall performance?

In conclusion, the approach and method of the adaptation could have been very different depending on which data that is being gathered and used and I have realized during the process that in reality there would need to be a greater amount of information collected, preparation and testing of solutions carried out for a project with this complexity and subject.

If I had more time I would define the spaces of the workplaces in more detail and perhaps add specific materials and colors to the whole building. I would want to learn more about the psychological factors and analyze the effects of the changes over time to know how they would be perceived by its users and change the methodology to get a different angle of approach to the project. But with the limitations and scope set in this case, I was challenged to be more selective about the decisions made to achieve the goals. The remaining question is, how do we know which method that should be used, and will there ever be definitive answers? It is for sure existing to see what the future holds. It was as I see it at least a step in the right direction of creating better coworking hubs.

Thank you.

References

Ahouse. 2022.
<https://ahouse.se/>
[2021-09-28].

Bernstein, E. & Waber, B. 2019. The Truth About Open Offices.
<https://hbr.org/2019/11/the-truth-about-open-offices>
[2021-12-13].

Burns, Melissa. 2019. Why developers and tech workers are embracing coworking spaces. 17 december.
<https://techgenix.com/coworking-spaces/>
[2021-12-28].

Casey, Abi. 2021. Business and individual attitudes towards the future of home-working, UK: April to May 2021. 14 jun.
<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/businessandindividualattitudestowardsthefuture-ofhomeworkinguk/apriltomay2021>
[2022-04-11].

Ceinar & Mariotti. 2021. The Effects of Covid-19 on Coworking Spaces: Patterns and Future Trends. *Springer* (pp.277-297).
doi:10.1007/978-3-030-63443-8_15.

Chan, Hugo. 2018. Alternative Realities - Approaches to Adaptive Reuse in Architecture. *Travelling Scholarships Journal Series*.
https://www.architects.nsw.gov.au/download/BHTS/Hugo_Chan_Alternative_Realities_BHTS_2019.pdf
[2022-01-17].

Convendum, 2022. Hybridkontor.
<https://convendum.se/sv/hybridkontor/>
[2022-03-26].

Fisher-Gewirtzman. 2016. Adaptive Reuse Architecture Documentation and Analysis.
<https://www.omicsonline.org/open-access/adaptive-reuse-architecture-documentation-and-analysis-2168-9717-1000172.pdf>
[2022-05-13].

Kim, J. & de Dear, R. 2013. Workspace satisfaction: The privacy-communication trade-off in open-plan offices. *Journal of Environmental Psychology*, Volume 36, 2013 dec. Pages 18-26.
<https://senate.ucsf.edu/2013-2014/mb2-kim%20and%20de%20dear%20article%20on%20communication%20privacy%20trade%20off.pdf>
[2021-12-12].

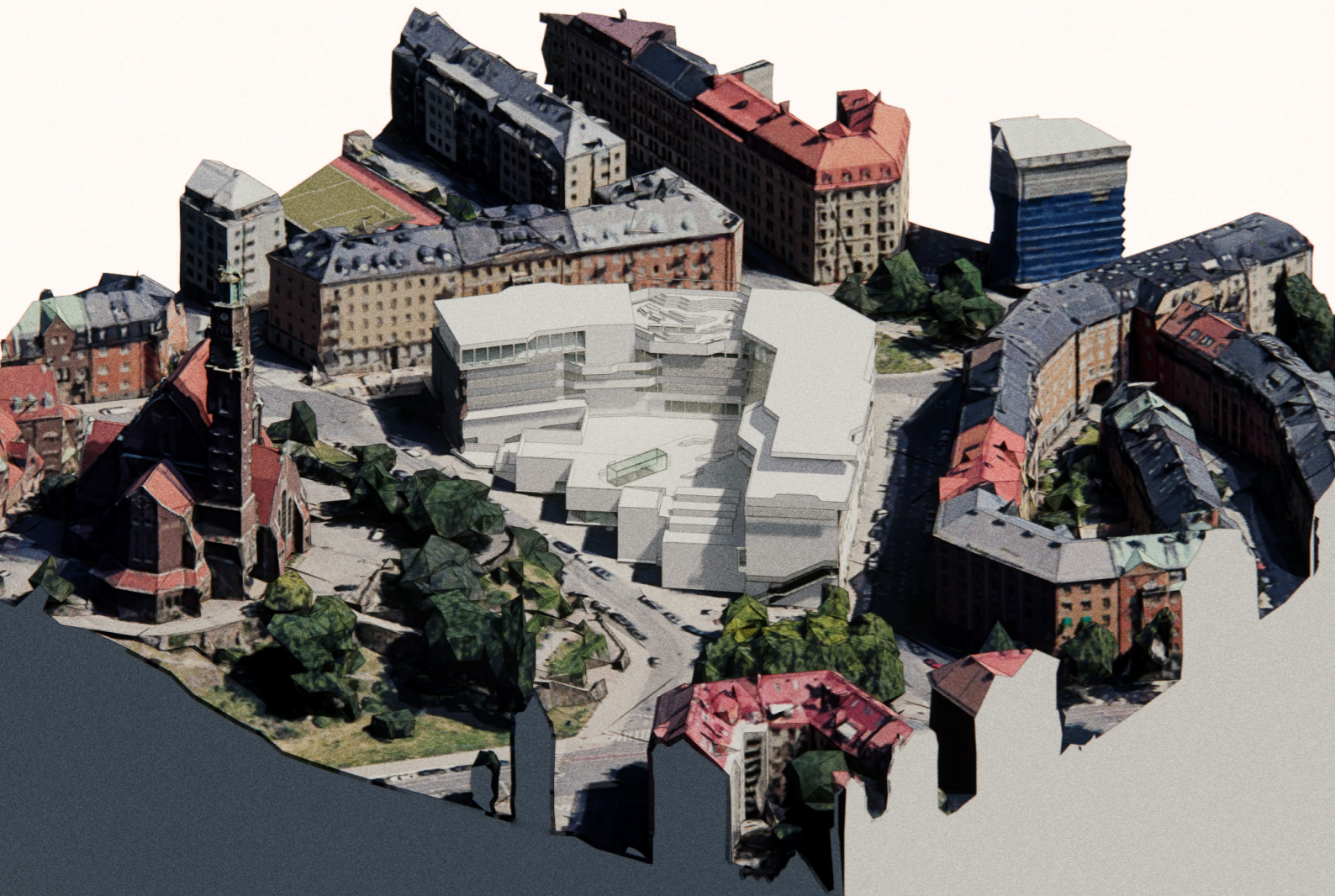
Mossfeldt, Hanna. 2019. Varför är coworking så populärt? 12 feb.
<https://blog.cbre.se/sverigesfastighetsblogg/workplace-strategies/varfor-ar-coworking-sa-populart>.
[2022-03-18].

Stockholm. 2022. Antikvarisk förundersökning.
<https://etjanst.stockholm.se/Byggochplantjansten/pagaende-planarbete/planaren-de/2016-15911/process#F%c3%b6rstudie%2fMarkanvisning>
[2021-10-18].

Stone, S. 2005. Re-readings: the design principles of remodeling existing buildings.
<https://www.witpress.com/Secure/elibrary/papers/STR05/STR05013FU.pdf>
[2022-04-28].

Uzialko, Adam. 2021. The End of a Controversial Era: Is the Open Office Dying? 18 nov.
<https://www.businessnewsdaily.com/10923-is-open-office-dead.html>
[2022-03-16].

Westin, Elin. 2020. SCANDIC HOTELS LAUNCHES THE LARGEST NETWORK OF COWORKING SPACES IN THE NORDIC COUNTRIES. 8 Sep.
<https://www.scandichotelsgroup.com/media/press-releases/2020/scandic-hotels-launches-the-largest-network-of-coworking-spaces-in-the-nordic-countries/>
[2022-05-01].



Thank you
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