

A STUDY OF THE SWEDISH BATHROOM AND ITS FUTURE FUNCTION



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Abstract

The bathroom might be the most essential room of the home. It is a room of acceptance and freedom, but exactly what people do in there is often kept in secrecy. During the last 100 years, the bathroom has developed from a room of function to a room for living. The everyday activities that take place in the bathroom are influenced by recreation, learning and socializing, yet the bathroom is limited by its original purpose to serve as a room for personal hygiene.

This project studies the Swedish bathroom and its development, from when it first entered the homes to what it could be in the future. There is a sense of change in our society where the definition of rooms in the home tend to become less defined and blend into each other. The Covid-19 pandemic generated new and innovative ways for utilizing the home. Others escaped to their holiday homes and created an everyday life in the undefined space that is significant of holiday homes.

The bathroom has been strictly regulated from the start, and firmly defined. However, Boverket's regulations regarding the bathroom and its use is now being updated. The new regulations will only require certain functions, and is therefore meant to promote innovation and creativity. Will this contribute to the bathroom's possibility to flourish, and what will it mean for the role of the bathroom in tomorrow's home?

In order to better understand the bathroom and its form, the historical development of it has been researched, which was useful for exploration of the future as well. Because of the secrecy around the bathroom, the project is also partly based on personal experiences. The aim with this project is to make the bathroom's qualities visible, as well as the shortcomings. The purpose is to challenge the outdated standard design of apartment bathrooms. As well as with new design incorporate its potential of being a room of living. Incorporating social aspects into the bathroom, might affect the Swedish prudery regarding nudity and toilette. I want this project to raise new thoughts and create new possibilities for the bathroom.

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01 INTRODUCTION

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Student background

My name is Jenny Helmer and I am the creator of this Master Thesis. I am originally from Jönköping, a Swedish city two hours eastern from Gothenburg. I grow up living in the same house for almost 20 years together with my parents, older sister and younger brother. Today I am 27 years and living together with my boyfriend here in Gothenburg. My life includes exercising and enjoying the nature, especially the cliff along the west coast and the forests around Jönköping.

I moved to Gothenburg in 2016 to start the architecture programme at Chalmers University of Technology. I did not have much knowledge about what the work of an architect looked like, except it is about creativity which I strongly identified with. Now after almost five years of architecture studies, the greatest insight about the work of an architect is that the work can look very different. And what you end up working with can depend either on your own interest or coincidence but most truly a combination of them. I spend last semester in Helsinki as an exchanges student where I increased my knowledge about wood in architecture profoundly. The idea of doing a Master Thesis about the bathroom also came to arise in Helsinki when we explored what the basic needs of living meant. Space to maintain good personal hygiene is essential in our lives but what hit me was that this place, most often called the bathroom is and could be much more than just a room for personal hygiene. What also came to my mind is that I have undeliberate often put a lot of effort in designing the bathroom and toilet rooms in my previous projects. Perhaps because I see this space as very important for feeling secure and relaxed. The bathroom became hence something I wanted to explore in a deeper context. It therefor became the focus of my master thesis.



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Purpose

The bathroom has evolved to be something else than a function room where to maintain personal hygiene. It is still referred to as a hygiene room in standards and in Boverket's regulations. It is often not considered to be anything else than a hygiene room. The development of the bathroom is limited by its historical purpose. The purpose with this project is to challenge the obsolete bathroom standards and explore what the bathroom could be as a living room - in the meaning of being a room of living.

Objectives and main questions

The main objective is to make the bathroom's qualities and as well as shortcomings visible, which are often overlooked when its historical purpose is prioritized - being a hygiene room.

- Q1** What historical event have been decisive for today's bathroom design?
- Q2** How can the history of the bathroom facilitate the design of tomorrow's bathroom?
- Q3** What is the bathroom today and what could be the role of the bathroom in tomorrow's home?

Background

Today's bathroom is something else from when it first came into our homes. From bowl to spa, as Kristina Lund writes in her book *Badrummet*, is a historical likeness of the bathroom's development. This project begins in a historical study to understand what the bathroom has been, is, and to see what it could be tomorrow.

At first, it was a functional room for personal hygiene. It can be seen as a solution to improve the neglected hygiene and health in Sweden in the beginning of the 20th century.

The increased interest in hygiene and self-realisation, combined with an improved economic situation, have made the bathroom more than just a hygiene room. Today it is a space for recreation, rest, playfulness, creativity and learning. However, the design of the bathroom has remained the similar since its introduction and may not be adapted to today's activities and needs.

The status of the bathroom in relation to other rooms in our homes has historically been low, partly because of its purpose and function in dealing with dirt. It also came into our homes when the home already was relatively set. This seems to have influenced the bathrooms placement and size, especially in apartments where light and space are limited.

Although, it has increased in size, partly due to accessibility requirements, it is still generally the smallest room. Sometimes even smaller than the closet. It is designed to be used by one person at a time, if you consider the design of equipment such as the toilet and shower. However, queuing for the bathroom or using the bathroom at the same time as the rest of the household is common.

Bathrooms are expensive to build and renovate because of the technical details and materials required to resist water and dirt. It has thus become a status room and something to show off for those with enough money.

The requirements for the function and design of bathrooms have been relatively stringent and may also be the reason why bathroom design has remained similar over the years.

The bathroom is strongly linked to water since it is required to maintain a good personal hygiene. In Sweden, fresh water is easily accessible. We almost take it for granted, to the extent that fresh water is used to flush the toilet. This can be seen as immoral as people in other countries live with difficult access to clean water, as people in Sweden did in the beginning of the previous century. Thanks to the water and sewerage system, people's bodily waste could be controlled and drinking water could stay clean. In India, where there is no developed water and sewerage system, developing one is not the optimal solution. Other solutions such as non-water toilets might be a better alternative. As the population increases, so does the amount of bodily waste, also in Sweden. We may need to be aware that the water and sewage system will need to be updated or supplemented. The use of fresh water for flushing is a debated topic and is seen as wasteful in the eyes of some.

The bathroom is an essential part of our everyday lives, but it is somewhat limited by its historical purpose. A gradual increasing interest in the bathroom has generated a greater amount of money being spent on it. This does not seem to have changed its placement, as it is still placed in the less attractive space of the home. This is especially true in apartments where light and space are limited resources. Therefore, the focus has been to visualize the importance and potential of what the bathroom could be in the apartments.

The premise is that there are needs and activities that are not adapted in today's standard design. The result of this project show that the bathroom could be something more than a hygiene room in terms of design.

Societal changes have historically had impact on the design of the bathroom. Boverket's regulatory framework that governing the design and function of the bathroom is being updated at the moment. This is said to encourage creativity and innovation. It should also give the architect a freer hand as the regulations will only consist of functional requirements after 2024. With the knowledge of the update, this project might be an influence for tomorrow's bathroom design and its perhaps new role in our homes.

Method

Personal bathroom experiences have been used as a starting point in this project. Relatable literature in the form of books, reports and digital resources have been searched for and literature studies have been applied to understand the history and development of the modern bathroom. My ears and eyes have been attentive to bathroom-related information in the everyday life, such as in the news, radio and social media. The bathroom has been discussed and conversated about with friends and family. The bathroom is a personal room and to converse about it have given me useful material. A constant searching for qualities of the bathroom have been going on everywhere.

A design concept has been developed based on the qualities and shortcomings of the bathroom that was found through historical research and research on today's bathrooms. The concept includes other spaces of the home such as the entrance hall, kitchen and balcony. The design concept has been further tested by incorporating it into existing floor plans. The plans are part of building projects that are newly built or soon to be built. The chosen floor plan followed a standardized way of designing apartments today.

The design evolved further but the focus came to be more on the bathroom and its role in tomorrow's home. The materiality and technical characteristics of the bathroom were researched and chosen based on suitability as well as personal opinion.

Theory

Historical references

The historical references Tidtypiska kök & bad (Björk et al., 2020), Badrummet (Lund, 2013) and Badrummet och städning. Hur ska badrummet byggas för att underlätta städning (Linn, 1985) have been fundamental for the understanding of the modern bathroom and its development. Literature study have been applied and the references have also been compared, analyzed and reflected upon.

Governing references

The current obligations when designing or renovating a bathroom is stated in Boverkets Byggregler (BBR). The Law of Planning and Building/Plan- och Bygglagen (PBL) is decided by the government and Boverket, a Swedish authority, specifies PBL into a regulation framework called Boverkets Byggregler.

In a short email correspondence, Boverket was informative about the upcoming updated version of the regulatory framework called Möjligheternas byggregler. It will be launched in 2024. Specifications about the new regulatory framework regarding wet rooms was now not accessible but a prototype of what it will look like.

Personal bathroom experiences - my own, friends and family

Since the bathroom is a private room and you might not talk a lot about what you do in there this project is partly based on personal experiences.

Friends and family have also worked as source of information to what the bathroom is and have been for them.

Standard bathroom of today

To see what the bathroom looks like today in new produced housings I have looked at some of Swedish largest real estate companies on the market and studied their new built or to be built apartment housing with focus on the placement of the bathroom and its relation to other rooms.

Delimitations

This thesis is about the modern bathroom and its development in Sweden. The modern bathroom is defined as the private bathroom in one's home. Bathroom experiences might therefore be individual and vary a lot from person to person. Material in this thesis will partly be based on my personal experiences, as well as material from conversation about the bathroom. The public bathroom/toilet room will not be included.

The focus will be on the bathroom in apartment buildings, where space and light often are limited resources in comparison to individual houses. The bathroom in apartments tends to be placed in the less attractive space, mainly in the darker area and without connection to the outside. Possible reasons might be because the bathroom does not have any requirements of natural light; water pipes and sewage are usually placed in the center of a building, where the bathroom needs to be connected; with limited space other rooms are prioritized before the bathroom; or because the bathroom requests privacy and being warm, which could be lost with a window or similar. Focusing on bathroom in apartments might be both more needed and challenging.

If the design proposal of the bathroom of tomorrow increases in size, should that not affect the overall size of the apartment, however other rooms may change in design or size. The aim with this project is to strengthen the bathroom and increase its purpose. And a larger apartment is probably not the solution.

Laundry is strongly related to personal hygiene but will not be included. The washing machine is not seen as a typical function of the bathroom in this study. There is an increased demand of washing machines in apartments and the common laundry room seems to be more frequently excluded in new produced apartment buildings.

It is mainly a question about resources. The number of washing machines would be significantly reduced. The washing might be reduced as well, as it might be a slightly more demanding task, but it will spare your clothes and the energy consumption. It does not seem to be any risk of compromising hygiene. By having the laundry outside the apartment it will provide space for other things, since it is a rather space-consuming function. A common space as a common laundry room could strengthen the community within the building or work as a meeting place. Smaller washing can still be done in the sink.

Material technology will not be researched in a deeper context. Material may be discussed when it comes to esthetic and feeling.

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Intro

The first civilizations emerged in places with access to large waters, such as the Euphrates and the Tigris in the Middle East, the Nile in Egypt, the Ganges in India and the Yangtze in China. Water was essential for the emergence of agriculture, as well as for the cleaning. In Egypt, cleaning of the body was mainly a religious contingent activity. Body fluids were considered to be impure and the cleaning a way to get free from spiritual impurity. Another reason to wash yourself was the stink, which later would be linked to illness and furthermore health (Nordqvist, 2018).

There are traces of baths and bathing facilities as far back as the ancient Greece, 2000 years before our time. However, it will be many hundreds of years before similar facilities appeared in Sweden. In the ancient Greece, people considered good health a result of balance between the body fluids. Bathing and its temperature were seen to help achieving this. The bathing facilities were built near hot springs and people gathered here for both bathing and conversations. These facilities were not for everyone and the hygiene in lower stratus was often poor. During the Roman Empire, these bathing facilities evolved to become both larger and more exclusive. At that time, taking care of personal hygiene was a public activity as well as a social one. Body washing was done in parallel with socializing with friends, discussing business and politics while enjoying the experience that the bath provided. Roman baths are well-known and are still imitated until today (Nordqvist, 2018).

Facilities like the Roman baths exist in Sweden today, often known as spas. Their precursor in Sweden is the so-called health resort (kurort in Swedish) that began to appear during the 18th century. Sweden was influenced by England where the link between health and bathing was rediscovered. Health resort was a place for recovery, recreation and treatment of certain diseases. They were often located near salty water or where drinkable spring water existed which were considered restorative to the health (Nationalencyklopedin [NE]. n. d).

Regarding the spa, it is somewhat unclear where it originated from but there are traces to Belgium in the 14th century. Its function is said to have been health-promoting, like the health resort (Nordqvist, 2018).

The concept of spa facilities today encompasses both the health and social aspects and focuses less on getting clean. A spa visit is probably something you do with friends or as a romantic activity. The purpose of a spa visit is foremost relaxation and recreation, and it is often considered to be a luxury. Whereas the daily personal hygiene has become something we take care of individually in our homes.

This historical study will focus on the bathroom in our homes which somehow originates from the public cleaning facilities. The history of the private bathroom and when it first entered our homes in Sweden takes its start in the mid-19th century. This historical study is mainly based on the books *Tidstypiska kök och badrum 1880–2000* (Björk et al, 2020) and *Badrummet –Från balja till spa* (Lund, 2013), the report *Badrum och städning. Hur ska badrum byggas för att underlätta städning?* (Linn, 1985), as well as texts at Nationalencyklopedin and HSB. The film *Det glömda rummet* (Wickman, 1960) has been useful for visually understanding the bathrooms of the past.



Figure 1. *Gård, Jungfrugetan 17* (shows outhouse).

Note. By Margareta Cramér, 1961, photo, located at Stockholms Stadsmuseum.

Historical development

1861 - the first water pipeline in Sweden was brought into service

During the 19th century, personal hygiene among the majority of the population in Sweden was severely lacking. This was partly due to the prevailing water shortage. The industrial revolution led to a large increase of the population of Swedish cities where there was no developed water or sewage management. The sanitary conditions were very poor, the streets stank and the water was contaminated. The sanitary situation was eventually linked to recurring epidemics. This realization prompted the Swedish leaders to act, and in the 1860s the rollout of the Swedish water and sewage system took off. The first water pipeline was brought into service in Stockholm 1861, and several major Swedish cities followed. The development of the water and sewage system is closely linked to the birth of the modern bathroom in our homes (Lund, 2013).

1866 - the first private bathroom was built

There were practically no bathrooms in Sweden before the mid- 19th century, and the water toilet does not exist in Sweden until the 1870s. At first, only the wealthy could afford such luxuries. Some of the first bathrooms were thus installed in mansions and castles. The first private bathroom in Sweden was built in 1866 on the initiative of the punch manufacturer Carl Fredrik Cederlund in his residence on Djurgården in Stockholm (NE. n. d).

The majority washed up outdoors during the warmer period of the year and used a jug and washbasin during colder periods but only when it was necessary which was relative rarely. In some communities, public baths like saunas and bathing huts were built and was mainly for adults. Some workplaces provided bathing facilities for their workers. Like in the ancient Greece, bathing was a collective activity during this time, although on a smaller scale.

The first sewage that was installed in the home was not for the toilet but for wastewater in the kitchen. The wash up with jug and washbasin was therefore done in the kitchen. The bedroom could in some cases serve as wash up place. A separate room for personal hygiene did not yet exist in working-class housing. Past time toilet duties were carried out in the outhouse located at the courtyard. Outhouses were used in the city until 1930 but still exist here and there on the countryside often in holiday homes (Lund, 2013).

1874 - the first Health Charter was established

The first Health Charter (Hälsövårdsstadga, in Swedish) was established in 1874. It stipulated that clean drinking water must be available, that latrines or outhouses must be appropriate located and waste and wastewater must be diverted away from courtyards.

The outhouse was also called the secret house, not necessarily because what you did in there was considered a secret but because most times you were not alone in there. There could be several seats in a row used at the same time. The secret was about the conversations and gossip that was discussed in the outhouse. A visit to the outhouse was an excellent opportunity to get away from the people with whom you were living together and talk about secrets. Overcrowded homes were a fact during this period which made it difficult to talk about things that would not be heard by all ears.

That the outhouse was in the courtyard made it more likely that people did not want to go there alone either especially in the dark. The potty was frequently used at night though, not only by the working class but by practically everyone.

Wealthier homes in the city had dry toilets placed in connection to the hallway. Emptying could then be done relatively easily from the stairwell through an opening to the toilet space. This was usually done at night and was considered to be an extremely degrading mission (Lund, 2013).

The bathtub became a novelty among wealthier families in the 1890s, and those with enough space and plenty of money acquired one. The bathtub was usually placed in a separate room next to the bedroom. At this time, people began to close the door and take care of their personal hygiene on their own. This could be the start of the prudery that we see today around these activities.

Wealthier people became gradually more interested in personal hygiene and dirt was highly associated with poverty. Several exclusive bathrooms were constructed in conjunction with advances in water technology in combination with the increased interest. Those who were wealthy but did not have running water had servants who fetched water from the well, heated it and filled the bathtub. It was also possible to order a bath, as there were companies specialized in delivering water and baths to your home (Björk et. al, 2020).

The average person washed up properly once a week. This was usually done on Saturdays, which also got its name from the old Swedish word of bathing; löga sig, lögardagen, today Saturday is called lördag in Swedish. However, this changed in the mid-20th century when showers and bathtubs with their own water taps became standard. It simply became much easier to get clean (NE. n. d).

1906 - the first water closets were connected to the municipal water system

The ceramic water closet was invented in England in the 1870s. Earlier versions of water-driven toilets did exist, but the great advantage of this one was that the water tank was mounted on the wall behind the seat, which simplified flushing a lot. The ceramic WC began to be used in Sweden at the beginning of the 20th century when it was permitted to connect them to the municipal water system.

Connecting water driven toilets to the municipal water system was considered immoral at first, as some people still did not have access to clean water. There was also said to be a risk of sewage getting into the clean water. In Gothenburg, the latrine emptying system of the time was a significant source of income for the city as it was sold and used as a fertilizer in agriculture. Because of this resistance, it was not until 1906 that WCs were allowed to be connected to the water system. However, the decisive factor in allowing the connection of WCs was the hygienic benefits that had been seen in several other European cities. Sweden was among the last countries in Europe to introduce water-driven toilets. It gets allowed in Stockholm three years later (Lund, 2013).

After 1906 the number of WCs that got installed increased significantly. They were often placed in the former place of the dry toilet, adjacent to the entry and stairwell. The space was tight and can only accommodate one toilet seat. The personal cleaning is still mainly done using a jug and washbasin or at the kitchen sink for those who now have water pipes directly in their homes.

The First World War started in 1914 and has a major impact on Sweden, which yet does not participate. Unemployment was high and there was a housing shortage. Social gaps were widening as some were more affected by the war than others. While some were crowded into small apartments, others were starting to furnish their bathrooms with sinks, bathtubs on paws and toilet seats in enameled cast iron or porcelain. Hot water could from now on come directly from a separate tap and the toilet door was fitted with a locking knob to indicate whether it is vacant or occupied. There was much to improve when the war ends in 1919.

1923 - HSB was founded

HSB (Hyresgästernas Sparkasse- och byggnadsförening) is a cooperative housing movement founded in 1923. Their main purpose was to build good and cheap housing for working class families in need of housing. Despite the lower financial situation of the target group, HSB and the HSB director Sven Wallander at the helm, fight to ensure that the apartments included hot water, kitchen and bathroom. The bathtub battle is a well-publicized dispute in which HSB faced rigid opposition when installing bathtubs in their apartments. The Swedish government deemed those regular baths did not apply to the working class and that the bath tub was an unnecessary equipment. It was not worth any government loans because it was likely to be used as a junk space. HSB made a compromise where the bathrooms were made large enough to accommodate bathtubs, but it was up to the residents to buy them, which could be bought relatively cheaply from HSB. The battle went on for ten years. Bathrooms became standard in all HSB housings in the 1930s (Häggmark, 2013).



Figure 2. *Interiör från badrummet i Stadsmuseets museilägenhet i barnrikehuset vid Stickelbärsvägen 7.*
Note. By Francis Bruun, 1990-1992, photo, located at Stockholms Stadsmuseum.

HSB installs a WC in the bathroom to increase the residents' desire to bathe. This meant that the bathtub was in the view when using the toilet. It seemed to be a winning concept because HSB residents started bathing like never before. Even friends and family to HSB residents came over to use the bathtub, which resulted in an increased interest in bathing among the common people. HSB was at the forefront of a major modernization of apartments in Sweden and not least of bathrooms (Björk et. al, 2020).

1928 - Det Svenska Folkhemmet was launched

In 1928, the politician and Social Democrat (later Prime Minister) Per Albin Hansson mentioned The Swedish People's Home for the first time. It was a vision of Sweden as an equal and just place for everyone. The vision included housing with good standard for all citizens, including the bathroom.

This vision was the basis for the Swedish model that will be strived for in the next decades (Björk et. al, 2020).

At this time, bathrooms with WCs and hot water were commonly installed in new built housing. While most older homes still lacked both water pipes and sewage. There was no specific destination for the wastewater; it flew directly into the nature and ended up in lakes and rivers. In 1928, the water in central Stockholm was so bad that outdoor swimming was banned. The consequences of letting the waste flow directly out in nature were said to be unexpected. The first wastewater treatment plant was built in Stockholm a few years later. However, it was not until the 1970s that wastewater treatment plants existed throughout Sweden (Lund, 2013).

1930 - The Stockholm Exhibition

Functionalism made its entrance in Sweden with the Stockholm Exhibition in 1930. The exhibition had a major impact on many things, not least urban planning, architecture and interior design. There was a bright and positive view of the future and a strong belief in development and progress. As a reaction of the overcrowded homes, a general desire to build good standard housings raised. It would be achieved through rational thinking and logical problem solving. Every housing presented at the Stockholm exhibition had bathrooms with WC and bath or shower (Björk et. al, 2020).

It was still rare to have a bathroom in your home and 86% of apartments in Sweden still lacked a bath or shower. Sometimes a common space for bathing and washing facilities existed in the basement. Selected workplaces provide bathing facilities, this applied mainly for men. Public baths like saunas and bathing huts were still used, mainly by women and children. People bathed on average once a week. However, children in school got the opportunity to get cleaned in school thanks to the general school baths. This will be an essential implement to influence the hygiene habits of the whole population (Björk et. al, 2020).

A growing interest in personal hygiene, showering and bathing increased markedly in the 1940s. It became standard to build bathrooms in new buildings in all types of housings. In 1945 older buildings started to become modernized and bathrooms were installed. A standard bathroom contained a bathtub, a sink and a WC. Bath and WC were from now on in the same room. Several innovative solutions appeared, such as the AB block developed by HSB. This meant that the bathtub, sink and toilet were placed in a row so that they could be connected to the same pipe system, which also reduced the use of materials and made the installation more efficient. Another profitable idea developed by HSB was the common water tap for the bathtub and the sink. The long tap could reach both the sink and the bathtub, presumed they were placed next to each other (Häggmark, 2013).

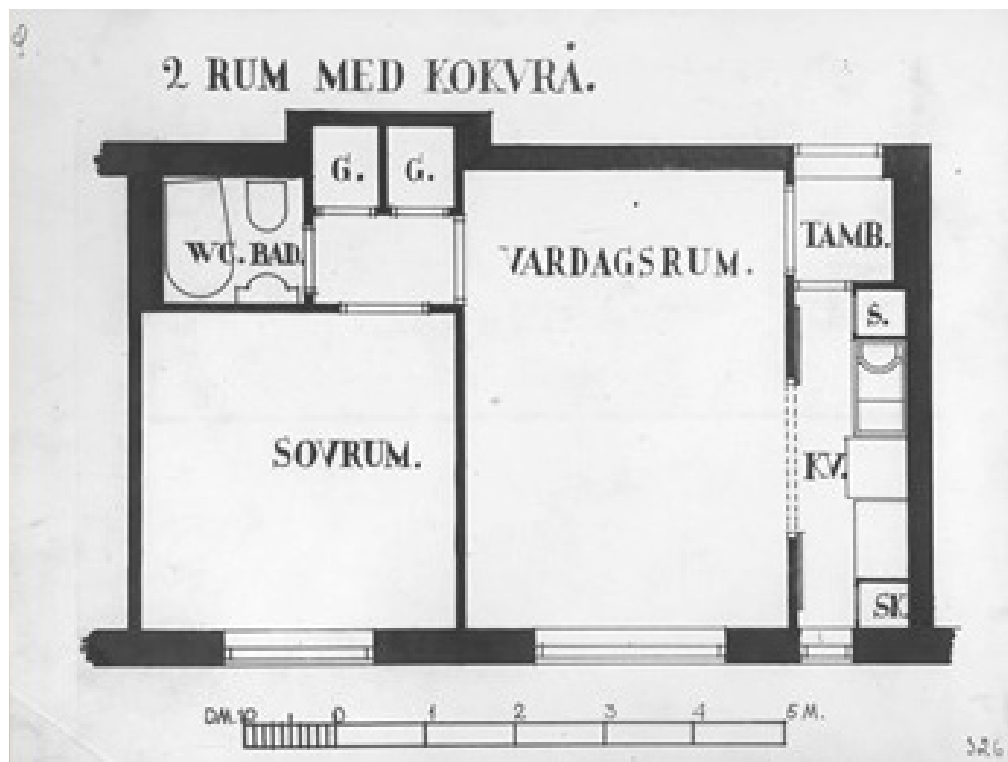


Figure 3. *Plantyp från HSB, 1929.*

Note. By Anna Ohlsson, 2013, photo, located at HSB-historien.se.



Figure 4. *Engelbrektsskolan. Skolbadet, 18 skolpojkar som tvättar sig. Lärare D. Wahlby.*
Note. By Samuel Lindskog, 1928, photo, Örebro läns museum.

1942 - The investigation of bathrooms

Although bathroom was the new standard in new buildings, they were often relatively inaccessible. An investigation of toilets and bathrooms was presented in 1942. The investigation was done by the architect Olof Thunström at the Cooperative Society's architectural office on behalf of Gustavsberg's porcelain factory. The investigation presented a limited number of floor plans that were intended to provide a practical bathroom. A complete bathroom should contain a sink and toilet, a shower or a bathtub where the latter was more common. More lavish bathrooms could be complemented with a bidet and an extra sink for small laundry. Equipment should be positioned so that they could be used appropriately and so that maximum available free space was obtained but this depended on the size of the room. There were no guidelines on minimum dimensions in this investigation, but it did include descriptions of technical solutions for flooring, ventilation and wall materials.

In the beginning of the 1950s, Hemmets forsknings institut (Home Research Institute) conducted a study on the practical use of the bathroom from a family perspective. This could be a reason for the increased interest in the functional design of the bathroom that was growing during this time. The study showed that people wanted to separate the toilet and bathroom to avoid queuing. It was also found to be advantageous from a light and ventilation point of view to have a window in the bathroom.

1952 - Gustavsberg bathroom furnishings in eight different colours were launched

The interest in bathrooms developed into a focus on furnishings from an aesthetic perspective. Famous designers such as Stig Lindberg and Carl-Arne Breger are commissioned to design bathroom furnishings including sinks, toilets and bathtubs. The furnishings got round, soft shapes. Gustavsberg porcelain factory launched a series of bathroom furnishings in eight different colours in 1952. The furnishing was mainly white or of natural colour until 1952 (Björk et. al, 2020).

New materials such as Italian mosaic and plastic laminate made their appearance in the 1950s. It is common to have one handle for cold water and one for hot water but only one tap where the water was blended (Lund, 2013).

1954 - God Bostad was published for the first time

God Bostad (Good housing) was a publication made by Kungliga Bostadverket (Royal Housing Agency) based on functional studies and housing surveys done since the 1930s. God Bostad contained minimum requirements for construction and housing design and was the basis for obtaining state loans. The first version was published in 1954 but updated versions were issued until the 1970s.

God Bostad from 1964 specified how bathrooms should be designed in terms of size and furnishings. An apartment of three rooms and a kitchen or larger must have one bathroom of at least 3 sq m and an additional separate toilet accessible from the hall. It was considered ideal to furnish family bathrooms with two sinks and a bidet.

The sauna is far from being a recent invention. There are traces of its history dating back 2000 years. Although, a wooden sauna in your own home became popular in the 1960s. This was mainly done in private houses, often installed in the basement in together with a shower. The sauna was launched as a place for socializing with family and friends, but became a status symbol (Björk et. al, 2020).

There was a relative large difference between rural and urban areas when it came to bathrooms. In 1965, one third of homes in Sweden lacked bathrooms and most of them were in rural areas. Only 45% of homes in rural areas had a bathroom (Lund, 2013).

1965-1975 - Miljonprogrammet

During the 1960s, a wave of demolitions took off which would last until the late 1970s. This meant that old buildings were demolished in a large extent and replaced by modern buildings of the time. The 1950s had been embossed by housing shortages and as a response, the government adopted the Miljonprogrammet (Million homes programme) in 1964. Miljonprogrammet meant that one million homes would be built during a 10-year period, which was accomplished between 1965 and 1975. The percentage of homes with bathroom increased drastically during this period.

However, the bathrooms built during the Miljonprogrammet are associated with mass production and built with untested materials as for example plastic materials, which was seen with the advantages of being cheap, lightweight and waterproof (Björk et. al, 2020).

Storage space in the bathroom increased in size as beauty products became more prevalent on the market.

During the 1970s, the network of water treatment plants was completed. Wastewater could from now on be treated and the water quality improved radically across the country (Lund, 2013).

1973 - The oil crisis

The 1973 oil crisis changed the view of energy as an infinite resource and the government launched campaigns to reduce energy consumption in Sweden. Campaigns such as showering instead of bathing which resulted in that more showers got installed instead of bathtubs.

The widespread availability of baths and showers got the outcome in a change in hygiene behaviors during the 1970s. Wash up only once a week changed to shower several times a week or for some people every day (Lund, 2013).

The bidet has its heydays in the 1970s but was sometimes replaced by a washing machine. And the single-handle water tap became commonplace (Björk et. al, 2020).

1977 - Accessibility requirements

The first accessibility requirements for the bathroom were introduced in 1977. All new constructed housing should be suitable for use by a person using a wheelchair. This meant that bathrooms generally increased in size (Lund, 2013).

There was an economical growth in Sweden during the 1980s that improved the living situation for an extensive part of the population and generates changed lifestyles for many people. There was a greater focus on personal care and enjoyment. The bathroom became a place for relaxation and self-realization. Updated bathroom standards in terms of accessibility results in more spacious bathrooms. Guidelines on how a bathroom should be designed for facilitate cleaning and how to avoid accidents were introduced.

Storage space increased further and for those who could afford a solarium or jacuzzi could install one in their home. The bathroom became more personally decorated, green plants moved in and mirrors became increasingly more important.



Figure 5. *Badrumsinredning i gult och brunt från 1967.*

Note. By Allt i Hemmet nr 3, 1967, photo, located at slöjdochbyggnadsvård.se.

1985 - Report about bathrooms and cleaning was published

The report *Badrum och städning. Hur ska badrum utformas för att underlätta städning?* by Gudrun Linn was published in 1985. It examined the design of bathrooms and the minimum requirements of the Svensk byggstandard (Swedish Building Standard) for bathrooms from a cleaning point of view. The research involved correlating the standard with experiences in keeping the bathroom clean. The report emerged that the bathroom had major shortcomings when it came to keeping it clean, with its many nooks and crannies, cavities and relatively cramped spaces.

A similar research report had not been done before. It became strongly criticized. Some critics meant that the report was ridiculous to have spent 10 years researching how to clean the bathroom (Linn, 1985).

Linn points out in the report that the bathroom sometimes served as a workplace, for home care workers for example. This reinforced the report's questioning to be something more than a personal issue regarding the home. Eventually, bathroom standards changed on the basis of the report to become more functional when it came to cleaning.

As a result of the changed hygiene routines in combination with the untested materials, water damages were a fact. The materials of this era did not have the capacity to withstand the amount of moisture generated by the increased water usage. At the end of the 1980s, this resulted in stricter regulations regarding waterproofing and surface coatings in wet rooms (Björk et. al, 2020).

1994 - BBR, Boverkets byggregler came into force

Boverkets byggregler (Boverket's Building Regulations) came into force in 1994. They were a collection of regulations and general advice that were imposed on buildings and developed by Boverket. The regulations included dimensions that could be used to achieve functional and accessibility requirements.

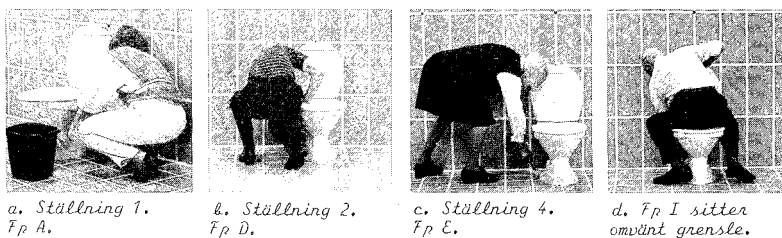
The increase of rot and water damages in the 1980s made people demand higher quality of equipment and materials. The demand for quality and natural materials was strong. The regulations on waterproofing became much stricter which made it possible to have the shower directly on the floor. This became popular feature and facilitated also the cleaning (Björk et. al, 2020).

Environmental issues had been of important matter since the oil crisis. The bathroom could be furnished with new energy-efficient interior, such as the low-flush toilet and the urine-separating toilet. In parallel floor heating, spotlights and mirrors without condensation entered the bathroom. The bathroom became a place where people wanted to spend more time and it evolved towards a home spa. Now more than ever before it became a status symbol and something you wanted to show off (Lund, 2013).

Trends were and are still changing fast. It is relatively common when moving into a new apartment to give your new home and not at least your bathroom a personal touch. Bathrooms are renovated like never before. However, the work must be carried out professionally and hiring a bathroom specialist is recommended to avoid disputes with the insurance company in the event of an accident. Bathroom renovations often become an expensive change.

19.2

161



Figur 19.2. Golvstående wc-stol, fritt utrymme.

Resultaten visas i nedanstående tabell.

Tabell 2.2. Avstånd centrum golvstående wc-stol - sidovägg. A är värdkriteriet. Där två ställningar anges intogs den andra i de mest ansträngande momenten.

Fp	Fritt mått	Skärmar mått				Mått- förslag	SBN 40 cm	Ställning
A	110-100	80	60	50	45	50		
F	70	60	50	45	-	50		
C	90-80	60	50	45	-	55 (eget förslag)		
E	110-60	70	60	-	-	65		
B	100	60	50	45	-	50		
H	60	50	-	-	-	55		
I	50	40	-	-	-	40		satt grensle
D	70	60	45	-	-	45/40	x	

Som framgår av tabellen ligger första måttet med skärmar ofta långt under det fria måttet. Detta beror på att försökspersonerna vid fritt utrymme placerade sig utmed den bakre väggen på ett sätt som man inte gör då utrymmet är begränsat. De så att säga angrep installationsenheten från sidan. Då detta inte kan vara realistiskt i ett standardbadrum, där angrepp framifrån torde kunna förutsättas, placerades skärmarna med tanke på den senare strategin. Detta innebär ganska stora skillnader mot det fria utrymmet.

Alla försökspersonernas ställningar på respektive måttförslag redovisas nedan i stigande åldersordning plus SBN sist.

Q1 What historical events have been decisive for today's bathroom design?

Political decisions seem to have had the greatest impact on the bathroom by means of strict and exact regulations. It has not been up to each and everyone to obtain a bathroom, rather a decision from higher powers that all homes should contain one. The political decisions have not come out from nowhere but have practically been enforced by societal problems in need of a solution, that sometimes have been led by a driving force. The bathroom could be seen as the solution to the problem with contaminated water, lacking hygiene and the recurring epidemics. The government solved it by taking control over the water and body waste in a system, a so-called sewage system where the bathroom is connected. Other decisive problems that have been the basis for political decisions regarding the bathroom are overcrowded homes and large class differences; changed societal habits when people began to wash up more frequently; and environmental related issues like the oil crisis; or when the lakes in Stockholm were contaminated by wastewater.

If it was not for a number of driving forces, the bathroom might not have looked the way it does, as they too have had some influence on political decisions. If it was not for HSB, the bathroom might not have included a bathtub, which is also partly the reason for the improved hygiene among working class families. And Gudrun Linn influenced the bathroom design by highlighting that it could be someone's workplace and stating the importance of keeping the bathroom clean and easy to keep clean.

The economy has had a significant role in the development of our homes and not at least the bathroom. Sweden's gradually improved economic situation since the beginning of the 20th century (in combination with socialistic politics) provided the opportunity to create a good home for everyone. It became standard to build bathrooms inside our home with sink, toilet and the possibility to bath or shower. The bathroom has developed in parallel with the economic situation. The square meters have increased, as well as the status. However, the bathroom is often the smallest room in our home and is often given the same place as when it first came into our homes, next to the entrance and less of a priority to have a window (read more under Bathrooms in new built housing).

On an individual level, the economy has also mattered. However, it has mostly considered the superficial aspects of the bathroom, such as interior design, colours and shapes, as well as equipping the bathroom with the latest technology. Although, this may have affected how the bathroom has been used. A room with a personal touch might be more appreciated and used to a greater extent.

Developments in technology have created opportunities for improvements of the bathroom. One example is the comfort which sometimes went even further and turned into luxury, such as the jacuzzi and the home sauna. The technology has also been challenged to develop solutions in areas such as energy consumption and materials, like the low-flush toilet and waterproof materials.

Q2 How can the history of the bathroom facilitate the design of tomorrow's bathroom?

The historical development has been fundamental to understand the bathroom, why it is designed, placed and functioning the way it does. And understanding something is as well fundamental if you want to criticize it and hence change it. Understanding what underlies change in the past may be helpful if you want to change something tomorrow.

The research about the bathroom's historical development has been interesting, even inspiring. Some issues in the past are similar to what we still discuss today but within a slightly different context, like the water. In the past water was a scarce resource and a number of water-saving solutions were tried out, such as using the same tap for the sink and the bathtub and the government campaign for that people should choose showering over bathing. Today, water is easily accessible and we take it often for granted. However, it might change in the future (read more under Water and the bathroom). The solutions of saving water in the past might be an inspiration to handle a similar issues that appears now. The bathroom que seems to have been a fairly disturbing event since the 50s, probably before then too. According to the study by Hemmets forsknings Institut the from 50s one solution could be to separate the toilet and the shower to make the situation more efficient. HSB put the bathtub and the toilet in the same room to improve the personal hygiene and remind people to bath. Now, personal hygiene does not seem to be threat to our society, rather the other way around. A lot of water goes to waste as we increase our personal hygiene routines.

In most cases it is given that the bathroom door is lockable. This small feature has had a great impact on the bathroom's identity. The lockable door made the bathroom become a room of freedom and provides a moment of privacy. If this feature were to be taken away, the bathroom might lose the feeling of freedom. This shows that small details of the past can have a great impact in the future.

Reflection

The bathroom might be more than just a hygiene room, but its task has also been and still is to manage the infinite issue as taking care of bodily waste. Human beings will always generate bodily waste and as the world's population grows. A bathroom might have to be something more in tomorrow than it is today.

When the toilet was connected to the municipal water system, it was considered immoral. It is still debated whether it is appropriate to use fresh water to flush away our dirt or not.

It might have been the best option at that time. But relying on the availability of that large amount of fresh water could become problematic. A possible future scenario could be swearer weather like droughts that could cause water shortage (read more under Water and the bathroom). However, the technology is constantly evolving, even in the area of toilets and water usage. The low-flush toilet is just one example and was invented about 30 years ago. Changes might not happen over one night. To cover all parts of Sweden with water treatment plants took over 40 years to accomplish. It may therefore be time to make a change.

The toilet seat, bathtub and sink have not changed radically in design, rather their technical finesses. Their design might be the ultimate design for their purpose. However, I do believe that we might be blinded by what they should be and not what they could be. The same applies for the bathroom.

When the bathroom became standard in our homes, it was not prioritized to get a lot of space. It might have resulted in that the bathroom became an individual room, as it more or less only could be used by one person at a time. Bathroom equipment like the toilet, sink and bathtub tended to be designed for one person. As mentioned before, their design has not changed radically.

This also means that the social aspect from these activities got lost. For better or worse, I can confirm that it is a very divisive opinion since it has been discussed it with friends and family. However, it is sometimes unavoidable that the bathroom must be used at the same time as someone else. The situation becomes beneficially much better if it is possible that more than one person then can use the bathroom at the same time. When the bathroom was moved indoors, it became safer to use the toilet since you did not have to go out. The bathroom has a feeling of being a safe space, which is justified as it can be perceived as being in a vulnerable position. Perhaps it is a feeling that lives on, even though many people today may not have grown up with a toilet outside the walls of their home.

The definition of what a bathroom should be has been very precise and still is with the relatively strict regulations. Although, it has changed over the years, it has ruled the design and function of a bathroom. It has been good, even necessary in some cases, but the bathroom might need to be seen with new eyes.

03 THE BATHROOM OF TODAY

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Definitions

Bathroom definition

According to Nationalencyklopedin, the definition of bathroom is a housing space containing a bathtub and meant for personal hygiene. The modern bathroom is generally also equipped with a toilet and a sink. The size of the bathroom depends on the equipment's dimensions and the required open space for accessibility (Nationalencyklopedin, 2022).

Bath definition

The definition of bath is not equal to personal hygiene or even water. The definition of bath is submerged of body in water or other medium as for example mud, seaweed, steam, sunshine, hot air or sand. The purpose may be for hygienic or physical well-being but may also be for medical or religious reasons. (Nationalencyklopedin, 2022).

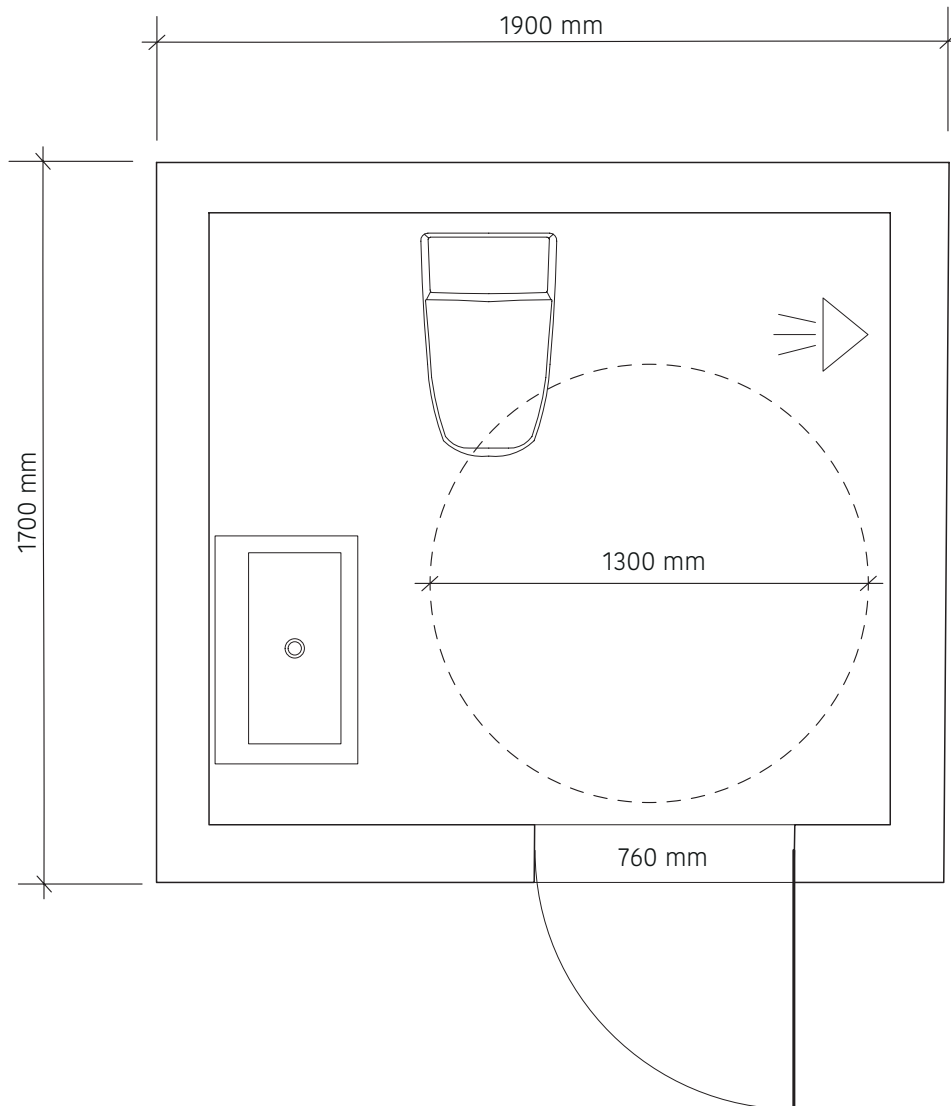
A relative new word in Sweden is skogsbad, meaning forest bath. The purpose with forest bathing is recovery from societal stress and being open minded in the nature by using sight, hearing, touch, taste and scent (Friluftsrämmandet, 2021).

Current requirements

The regulations are contained in Boverkets Byggreglar (BBR). Each home is required to have at least one hygiene room; in homes adapted for more than two persons, the number of hygiene rooms may be increased. The hygiene room should be designed to be accessible and usable for a person with reduced mobility and orientation. It should therefore be usable by a person using a wheelchair. If there is more than one hygiene room, at least one of them should be accessible to a person with reduced mobility and orientation.

The required minimum dimension of hygiene room is currently 1,7 m × 1,9 m, which is approximately 3.3 sq m. It must contain a turning space with 1,3 m in diameter and the opening must be at least 0,76 m. BBR further refers to additional measures for improved accessibility such as door sills, placement of equipment and the like (Boverket, 2021).

The regulatory framework is being updated at the moment (read more under A sense of change).



Thoughts of today's bathroom

The bathroom is essential for our everyday life. Every day, everyone needs to use what is in the bathroom. The personal hygiene has a great focus in our society today, maybe even more after the pandemic when good hand hygiene was one of the most expressed restrictions to decrease the risks of become infected or infect others. The hygiene routine may also have been extended during the last decade as the interest in beauty and appearance has developed intensively.

Significant for the bathroom is that the door is lockable. This is a freedom that allows you to do whatever you want without anyone knowing. What happens in the bathroom can never be totally sure and that makes the bathroom somewhat mysterious, but as I can interpret it has not affected the general bathroom design. It could mean that what happens in the bathroom is not discussed in public nor does it require anything else than a space that is lockable.

We can speculate on what others do in their bathroom by starting from ourselves, that gives the bathroom a sense of acceptance. The acceptance might also be based on the fact that the bathroom is meant to handle dirt. Bathroom materials are often durable, waterproof and both easy to keep clean and to clean. You rarely find delicate textiles in the bathroom, such as expensive carpets and curtains or upholstered furniture. They would probably get mold due to the high moisture content. It is accepted to do dirty work and stuff containing water spill.

The bathroom seems to be a room where you spend the most time alone, given the way the equipment is designed – to be used by one person at a time. The toilet certainly, but also the sink and the shower, although some insist on using them at the same time. The bathtub might be the equipment that is used by more than one person at the same time, mainly children. Although, bathing together with your partner is seen as a romantic activity, but it might be more about closeness and intimacy than getting clean.

The bathroom works as a free space when in need of getting away, have a break and be on your own for a moment thanks to the lockable door. It is said to be the place where parents get a chance to have a minute on their own and reload or just answer emails and scroll the social medias. The bathroom is meant for personal hygiene, but it is more often something more than just a hygiene room.

Water and the bathroom

We depend on fresh water for good hygiene and health. This becomes clear when looking back at the history, when a lack of water had a radical impact on the general health in our society. Personal hygiene could not be maintained and bodily wastes could not be taken care of properly but ended up in drinking water that caused recurring epidemics. The bathroom became the solution for improved hygiene and health. Hence, the availability of fresh water in the bathroom is a matter of course. Today, we take clean water for granted in Sweden, to the extent that we even use fresh water to flush our toilets.

It is discussed that the effects of climate change will become increasingly intense, even in Sweden. According to the Naturvårdsverket (Swedish Environmental Protection Agency), this will mean more precipitation, that could cause flooding and create problems with water management. Droughts may become more frequent, especially during the summer months (Naturvårdsverket, n.d.). This was evident in the summer of 2018, when Sweden suffered from water shortages and groundwater levels dropped to below normal due to prolonged heat and lack of rainfall. Krisinformation (Crisis Information) reported that 85 municipalities issued irrigation bans and over 100 municipalities urged residents to conserve drinking water. Groundwater is one of our most important resources, providing fresh water to large parts of Sweden (Krisinformation, 2018). Water scarcity will also affect the possibility of growing food.

Sweden can be seen as relatively spared from the consequences of climate change. There are those who are much harder hit. Climate change, combined with relatively high poverty and population, has left people in India living in conditions similar to those in Sweden at the beginning of last century.

In the documentary series *Fantastic Inventions* from 2020, the episode about the toilet argues that the optimal solution in India is not to develop the sewerage system. Rather, a more appropriate alternative is toilets that do not require water and that allow bodily waste to be reused as fertilizer, biofuel or similar. According to the documentary, there have been relatively large developments in this area in recent years. The documentary mentions the Nano Membrane toilet which is a waterless and energy free toilet that turns the waste into farming fertilizer.

The documentary also addresses the situation in London and the Thames where high levels of medicinal preparations and drugs are found in the water. Pee is not thoroughly purified from these substances and ends up in the environment instead. Urine-separating toilets are currently available on the market but have not yet achieved sufficient penetration (ZDF Enterprises, 2020).

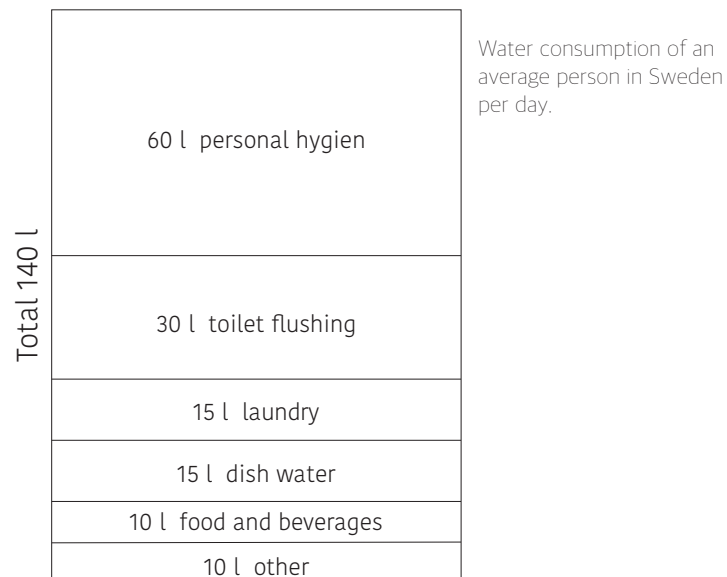
Water free toilets and urine-separating toilets are solutions that could work in Sweden as well, but like in the history, changes do not often happen overnight, nor do they happen until it is considered a crisis situation.

Irrigation bans and appeals to think about water consumption are signs that should be acknowledged. Today, the average person in Sweden consumes 140 liters per day, of which 60 liters are used for personal hygiene and 30 liters for flushing toilets. Washing clothes is expected to be 15 liters per day, but hopefully do the average person not laundry every day. A washing machine uses about 50 liters per washing programme (Svenskt Vatten, 2021). Water for flushing seems to possibly be reduced in several ways, for example by installing dry toilets. Another solution could be to reuse water from the washing machine, for example. This would halve the consumption of flushing water.

Sweden's water and sewage system is well developed and has been a great help to the progress of society. This is not to criticize it, rather a development to the fact that the human waste is a growing issue and the water should be prioritized to be drunk instead for flushing.

A Swedish bathroom is most likely always equipped with water outlet and connected to the sewage system. Unlike the kitchen, which is also equipped with water, the entire bathroom is designed to handle and withstand water spills and high humidity, some spaces more than others. The bathroom can be divided into different wet zones based on the load on the waterproofing that is likely to occur. Bath and shower areas, as well as the floor are included in wet zone 1. It is the zone with the highest water load, thus with greatest risk of moisture damage. The rest is included in zone 2 which also can handle a certain amount of water (GVK, 2021).

The availability of water and its water resistance make the bathroom a unique environment and create opportunities that no other room in our homes can match. All water-related activities and messy situations such as play; like filling water balloons, bathing and blowing soap bubbles or experimentation; like cutting hair, face painting and making figures out of wallpaper paste and newspaper or cultivation; as in showering plants, planting and replanting or cleaning; of fine clothes, of paintbrushes and children and animals or recreation; in the form of a bubble bath, various body treatments and hot showers, are all referred to the bathroom.



The bathroom in newly built houses

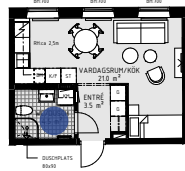
This thesis is delimited to focus on bathrooms in apartments where light and space are limited resources. I have therefore made a small study of newly produced apartments in order to understand how the bathroom is designed today and placed in relation to other rooms. A number of floorplans of newly built or soon to be built apartments have been collected. These floorplans may show the standard floorplan as it is designed today since there are similarities when it comes to room sizes and distribution. They are produced and developed in cooperation with some of Sweden's largest real estate companies such as HSB, Riksbyggen, Nya Kvadrat, FO Peterson, JM, Hökerum Bygg and Magnolia bostad.

I have chosen to look at one-, two- and four-room-apartments. One-room-apartment is the smallest type of apartment and could be important to show what would happen if the bathroom would take a greater part in this limited space –the apartment should not increase in size, even though the bathroom does. Two-room-apartments is the most common apartment in Swedish cities according to SCB and is therefore relevant to explore. I have also chosen to look at the apartment with four rooms and kitchen to include a larger apartment. According to my study of new produced apartments, apartments larger than four rooms does not seem to change radically except addition of bedrooms. And apartments with more than 6 rooms is less common, as well as less coveted (SCB, 2021).

1 room + kitchen

30,5 sq m

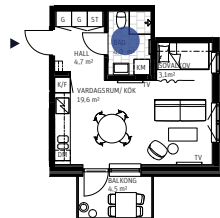
HSB
Majorna, Gothenburg
Year of construction: 2022



An apartment with one room and kitchen is today normally about 35 square meters and the open floorplan seems to be the most common design. The kitchen and living room share space with the sleeping area, which is sometimes separated by a wall or an alcove.

32,6 sq m

Riksbyggen
Masthugskajen, Gothenburg
Year of construction: 2025



The bathroom is mainly placed in the darker area of the apartment and therefore lacks windows or connection to the outside. The bathroom is often placed next to the entrance which also is the only way to reach it. New apartments are more often equipped with their own washing machine or similar, even smaller apartments. One or two persons at the same time might be living in these types of apartments. In my experience, laundry needs to be done about once a week for a single household and not much more often for two people. A personal washing machine may be comfortable but space inefficient and a question about resources.

34 sq m

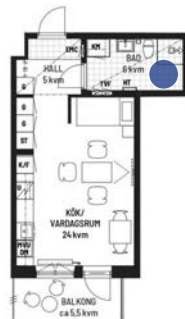
Nya Kvadrat
Stigberget, Gothenburg
Year of construction: 2024



In these floorplans, the bathroom is the most intimate space and somewhat disconnected from the rest of the apartment.

35 sq m

Nya Kvadrat
Högsbohöjd, Gothenburg
Year of construction: 2022

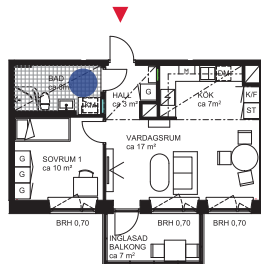


● the bathroom

2 rooms + kitchen

45 sq m

Riksbyggen
Selma Stad, Gothenburg
Year of construction: 2023



An apartment with two rooms and kitchen can vary in size but is regularly about 57 square meters. The open floorplan is frequently seen in two-room-apartments. The difference from the one-room-apartment is that the bedroom has become a separate room.

52 sq m

HSB
Ytterby, Kungälv
Year of construction: 2021



The balcony or the so-called spare room, is generally larger than the bathroom. A balcony that is glazed-in might be used more often than a balcony without glass due to the Swedish weather conditions. Whereas the bathroom is used at least two times a day.

● the bathroom

54 sq m

FO Peterson
Majorna, Gothenburg
Year of construction: 2023



65 sq m

HSB
Öjersjö, Partille
Year of construction: 2023



4 rooms + kitchen

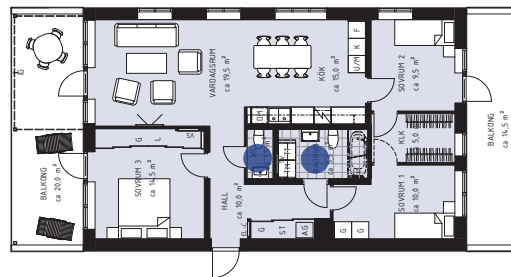
An apartment with four room and kitchen is normally about 100 square meters. The kitchen and living room share the same space and the bedrooms tend to be placed with privacy in mind. Walk-in closets are figuring and are relative spacious. One walk-in closet even got a window while the bathroom has not. The bathroom does not increase radically in size, but an extra toilet room is required in larger apartments. The bathroom and the extra toilet room are often placed in close connection; thus, the same pipes could be used.

● the bathroom



87 sq m

JM
Västra Frölunda, Gothenburg
Year of construction: 2023



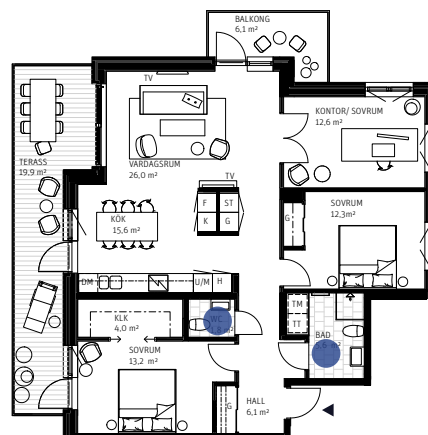
96 sq m

HSB
Öjersjö, Partille
Year of construction: 2023



98 sq m

Magnolia
Majorna, Gothenburg
Year of construction: 2024



103,8 sq m

Riksbyggen
Masthuggskajen,
Gothenburg
Year of construction: 2025

Outcome

If privacy could be gathered from the placement, size and accessibility of a room, it is clear that the bathroom is considered to require the most privacy, both from the other rooms as well as from the outside world. The bedroom comes next, while the kitchen and living room most often share space and creates the social room in our homes. The kitchen, which used to be a functional room, like the bathroom today, evolved to become the place in the home where people gathered (read more under A sense of change). Today, the kitchen is seen as the heart of the home. If the kitchen is the heart of the home, then perhaps the bathroom could be equated with the brain of the home. It is already a place for rest, reflection and recreation, but also a space for creativity, learning and experimenting. I believe that, like the kitchen, it could evolve into a more social space and be designed to be something more than a hygiene room.

As it is designed today, it is advantageous to use it one at a time. If the bathroom was designed to be for more than one person at a time it would probably be larger. Nevertheless, it is not uncommon that more than one person is in there at the same time, as routines look reasonably similar in the households.

In several of the floorplans, the bathroom and kitchen are not located close to each other and thus require different drains and water pipes, which lands in a resource issue. If the bathroom and kitchen would be adjacent to each other, they would also be able to share water and sewer connections.

In some of the floorplans, the closet is larger than the bathroom. In one example the closet even has a window. Hence, it could be used as an office, nursery or similar. I would say that there are plenty of arguments that even the bathroom could be used for something more than hygiene room too.

The same applies to the balcony, which seems to have increased both in size and number. However, building a balcony does not require as much as building a bathroom. It tends to be less used as the Swedish weather balcony friendly the whole year round. If, on the other hand, it is glazed, its use increases considerably and it can serve as spare room.

Personal bathroom experiences

As for my own bathroom experiences. The bathroom in my home is a small one, far from being accessible for a person using a wheelchair and nestled in the hallway between the kitchen and the other room. Me and my boyfriend are living in an apartment with one room and a kitchen of 34 sq m in a Landshövdingehus. The space where our bathroom is today was probably storage space in the past. It may have been some type of toilet space but most likely a toilet was installed at a later date.

The house we are living in was built in 1935, around the time when it became standard to build apartments with their own bath or shower room and when requirements for the size of these spaces did not exist. There are still traces of a general washing room in the basement. It even has a shower that works but is mainly used as a bike storage room. The shower is used every now and then by a woman who has not yet installed a shower inside her own apartment. However, it should be said that the woman uses the apartment as an extra home because of her work and is mainly living in a house on an island outside Gothenburg. I can say in all probability that there are much more comfortable washing facilities there.

Our bathroom houses the essential features we need. Toilet, shower and sink and some storage space. However, not all our "bathroom stuff" fits in there and we are not any beauty worshippers nor gadget collectors. It is barely possible for both of us to be in there at the same time and there is a certain charm to that too, even if it does create an annoying atmosphere at times. Nothing says that we must be in the bathroom at the same time, but our routines correlate unfortunately and seems not to change.

The bathroom in the house I lived in from birth until I was 20 should have made an imprint, perhaps even being the starting point for my current bathroom commitment. I grew up with a bathroom that I enjoyed being in and have therefore spent a lot of time in there, perhaps more time than the average person spends in their bathroom. It is relatively large one, about 7 sq m, larger variants exist absolutely. The decor is not very remarkable, it is mostly white and has been the same since the early 1990s. Grey tiles on the floor and tiled walls in white to shoulder height. It has two windows also at shoulder height, with the afternoon sun streaming through the wooden blinds. There is a toilet, a tin bathtub with a loose front, a shower and a sink set in a wall-hung commode. For me, it was revolutionary when the automatically braking toilet lid was installed in our home. My bedroom was next door to the bathroom and with excellent hearing this invention became significant to my sleep, teenage mood and focus.

Thanks to the size of our bathroom, there have been times when both parts and the whole family of five have been in it at the same time. Spontaneous family gatherings during the evening routine were frequently happening and the hairdressing salon that occurred every now and then have been money saving for sure. It should also be mentioned that the house dates from the 1950s and during my childhood the windows were not very sealed. The bathroom was the only room in the house with floor heating, you wanted to be in there.

Our bathroom did commonly turn into an experimental workshop for my, my siblings' and our friends' looks. I underwent various haircuts, dye jobs, ear pricings and face paintings. And this did not only happen in our bathroom, I can confirm that. A friend told me that she used the bathroom for doing her homework. This got me thinking that the bathroom is an important social space for children and young people, something you might not think about when designing one.

The bathroom I grew up with is in an independent house. It is no secret that there is usually lighter and more space to work with in a house than in an apartment building. The bathrooms in the houses will have more to play with.

The bathroom has also been my workplace. I do not mean my own bathroom, although it is an exciting thought that the bathroom would house office space. I have had several jobs where my workplace is someone's home. I have been working in the elderly care sector, both in home care and in shared accommodation. I have worked with children and young people with disabilities and within the psychiatry supporting people in their everyday life in and outside their homes. I have seen bathrooms in many different conditions, designs and adaptations and it might be very useful in this project.

A sense of change

Comparison with the kitchen

In the chapter about the historical development of the bathroom, it could be read out that the view of the bathroom has not changed radically since it entered our homes. There is rather a lifestyle change and changed behaviors around personal hygiene.

Like the bathroom, the kitchen was at first a function room which has evolved to be the natural place in our homes where to gather friends and family. In the report *Berättelser om den öppna planlösningens arkitektur* (Willén, 2012) the open floorplan is studied and shows how the kitchen has become an increasingly more important room in our homes. The definition of an open floorplan in this context includes the functions of living room and kitchen with the absence of closable doors between these spaces.

In the 1980s, the open floorplan increasingly became involve the architectural discussion in Sweden, although it had already been discussed in Europe for a long time. In the 1990s, new built housings were designed more often with an open floorplan. And in the 2000s, the public could get an own opinion about it since it was frequently figuring in home style reportage in magazines and in do-it-yourself-shows on TV. The open floorplan was seen as an architectural quality. At the same time, the kitchen evolved into a gathering place for everyone's needs in a more stressful everyday life. The wall between kitchen and living room became increasingly less existing (Willén, 2021).

Today's lifestyles are closely associated with the open floorplan. It is not only one type of lifestyle that is considered in this design but it offers a wide variety of ways to live. Although, the social aspect is in focus (Willén, 2012).

The simplicity of the open floorplan is mentioned in several of the stories on which Willén's study is based. No one must miss anything by being in the kitchen. Helpfulness tends to happen in a more sophisticated way as it becomes visible what needs to be done in the kitchen. And cooking has turned into a social activity.

The bathroom is associated with alone time and being able to lock yourself in for a moment. An open floorplan that includes the bathroom is probably not an optimal solution as the sense of freedom could be lost, a feeling that is worth preserving. However, giving the bathroom the ability to be used in many ways, not only as a hygiene space, might be right on time.

The interest in our own and others' homes has escalated. The channels through which we pick up this information are many, ranging from newspapers and magazines, television shows not primarily about the home but gardening, antiques, DIY and cooking, as well as in the social medias.

Being on a various social media it is almost inevitable to miss the great interest in appearance and beauty that exists in society. These activities are associated with the bathroom which might be another reason for the bathroom to become a larger part of our home.

Effects of the pandemic

We have lived through a pandemic that forced us to stay at home to a greater extent.

Our homes were transformed into workplaces and schools into gyms and hairdressing salons. These activities could also be carried out in parallel, forcing us to use our homes in new and innovative ways. The pandemic may be over for now, but according to the IPBES, the future may be even more fraught with pandemics.

We may think about the home could become more efficiently used if the scenario would be repeated. The bathroom might need to be designed not only to work as a hygiene room, but like an office or a gym.

The pandemic caused a dramatic increase in summer house sales. One reason was possibly that many apartments did not have space for home offices in combination with other activities. House sales increased as well but not as much as holiday homes which is usually the cheaper alternative. There were numerous who created an everyday life in the holiday homes. Significant for the holiday home is that it contains undefined spaces and associated with a relaxed lifestyle (SVT, 2020). The pandemic could have had some impact on the way we look at definition of space.

New regulations

The regulations regarding the bathroom (and all other thing associated with building) can be found in the Boverkets Byggregler (BBR) which is a specification of the Plan och -Bygglagen (PBL) which is determined by the Swedish Parliament.

At the moment, the regulations are being updated, not the law and its requirements but the regulatory framework. The new version is called The Building Regulations of Opportunities (Möjligheternas byggregler). It aims to promote innovation and technological development, thereby helping to make construction more efficient and foster greater competition.

BBR is today including standards and recommendations but will be phased out. They will be replaced by functional requirements which means that there is no explicit way to achieve the requirements but what must be achieved functionally. The new regulations will take effect on 1 July 2024. This update could have a relatively large impact on the future design of bathrooms both terms of function and materiality (Boverket, 2022)

Understanding the new regulations

The purpose of Boverket is to specify the requirements for building and construction based on PBL, the law of Planning and Building, which is set by the Swedish Parliament.

There are building recommendations within the regulatory framework that are called rules but they are recommendations and not binding. The recommendations are supposed to be examples of how to comply the regulations but have become more of a rule than a recommendation, and has been perceived as unclear and possibly inhibited creativity and development.

General recommendations and references to standards and different authorities will not be included in the new regulatory framework but will remain available – to avoid reinventing the wheel.

Standards are included in the current framework and are updated regularly. It have caused confusion since the regulations needs to be renewed everytime a standard changes. The greatest difference with the new regulations is that they will not include standards and not need to be updated every time a standard changes.

Building standards have existed since the 1940s and will still consist and be useful.

The new building regulations should encourage innovation, creativity, trial and error – it mean that error will happen. Testing is part of development and innovation. Not everything can be right from the start.

The new regulations mean that the government is taking a step back. Architects, engineers and the like will be allowed to demonstrate their knowledge! (Boverket, 2022)

Navigating the BBR is sometimes quite a challenge so a simplified and clearer version is needed. The question is if it will be easier when standards and general advice and guidelines will no longer be referred to.

These changes could mean a greater freedom and give architects a freer hand. An update with focus promoting innovation and creation is evidential for a change towards the less strict and more possibilities.

Framework prototype

Since the new regulatory framework launches in 2024 the new regulations regarding the hygiene rooms or wet rooms are under process. I have been in contact with Boverket who refer to the framework prototype. The prototype has been developed for Protection against noise and will be the guiding example for the rest of the regulations. All rules in the current BBR will be rewritten using the same structure as in the prototype.

The prototype has been developed in consultation with, the SIS Technical Committee on Building Acoustics, as well as the Public Health Authority and the Swedish Work Environment Authority referred to in the previous regulations, Chapter 7 of BBR.

The new prototype for Protection against noise came into force on 1 January 2022.
The new regulation prototype contains concrete tables with what is acceptable noise levels.

Reflection

Speculating about the future regulations of the bathroom

It may be time for a new type of bathroom. There is not just one sign pointing in that direction, but several. The most obvious change is the updated regulatory framework that will be launched in 2024. Since the regulations surrounding the bathroom are not available right now, one can only speculate. The regulations governing waterproofing and accessibility seems relevant continued to being strict, for everyone's comfort and possibility of use.

The same goes for ventilation, which should be adapted to the function and activities of the space. Materials will no longer be specified but rather the requirements of their function. This makes the future exciting.

The bathroom has no natural light requirements today, which could be a logical explanation for why it is usually placed in the darkest part of the home. It would be interesting to see what would happen if the new regulations would include requirements for natural light also in the bathroom. It could facilitate the ventilation system for example. The consequences of such a change would probably change the design of the standard bathroom.

Having a window or similar in the bathroom can be seen as needed, to get the contact with the outside and the getting the light, especially if the time we spent in there will increase.

One could hope that water consumption should be regulated in some way, perhaps in terms of the amount of water that can be consumed in the same time. This could mean a limited number of water outlets or the possibility of a washing machine inside the apartment or limited number of waters driven toilets. These type of regulations do not exist at the moment and is just a speculation.

Our homes might shape us more than we shape our homes

The lockable door and being a room without windows create a privacy and secure feeling which is very significant for the bathroom. It is reasonable since you are often naked and being at your most vulnerable. Although, looking back at the history shitting together was the normal. At the time the toilet entered inside our homes we stopped doing it as a collective activity. The need did not exist anymore while the darkness and unsafe way to the out pit disappeared. The toilet room indoors was tiny and the space just enough for one person at a time.

Using the toilet became something private at the moment it entered inside our homes and got a lockable door. Today it is almost unthinkable to shit in front of anyone else or anywhere else than in your home.

It has become an actual problem that people in Sweden avoid using public toilets. Every other person (mostly young women) in Sweden waits until they are home, which could lead to health related problems (p3Nyheter, 2022).

People in Sweden seems to have relatively much prudery when it comes to nudity. During my exchange semester in Helsinki, I felt a difference between Finland and Sweden in this matter. People in Finland seemed to feel more relaxed being naked together in public, in relation to what I was used to. This observation was done when visiting public saunas and a swimming hall. The reason for this might be because of their strong sauna tradition. Saunas exist in city center as well as in your home. It is primarily both a collective and naked activity.

Bathroom qualities

The bathroom is kind of unique thanks to the access of water. Unlike the kitchen, the whole bathroom is water tolerant, which also makes it tolerant to soiling and water related activities. The surfaces are easy to keep clean and cleaning. The bathroom seems to be able to handle whatever involves water or dirt. However, foremost surface-wise while it is not designed to for anything else than hygiene related activities.

The privacy of the bathroom is an important matter. There are different types of privacy like; in need of alone time and a quiet moment; not being visible; not being disturbed for example. It could be applied both to one person but also to more than one person. Alone time could be needed for two parents. The lockable door might be necessary to achieve a certain type of privacy but can be fulfilled without a lock too. It may depend on what activity is. Working at home can be done without the need to lock the door as it is considered a reasonably important activity – you do not want to disturb. Being able to know what activity carried out by looking through glass or hear through a wall can remain an activity undisturbed and would in such cases be achievable without a lockable door. This regards activities like children playing or deep conversations.

Locking the door may be more necessary if it is something very private, like using the toilet. However, privacy around activities can look different as well. Using the toilet is considered very private by some, while others may do so while the bathroom is occupied by the whole family.

Being a room with integrity and tolerance, generates an acceptance of what happens in the bathroom. An acceptance that also creates a freedom. It may be the room where nudity occurs most often. This should be kept in mind when thinking about materials and the feel of the room. Being naked means being in a relatively vulnerable position. The feeling of safety and warmth should be a necessity. The fact that the bathroom has been strictly controlled has sometimes been good and sometimes less good. A good example is the accessibility requirements that allow everyone to use one of the most important rooms in the home.

04 THE BATHROOM OF TOMORROW

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In this chapter I will discuss and propose what the future bathroom could look like. The design proposal is based on the research and findings in the previous chapters. I want this Master Thesis to raise new thoughts about the bathroom and my design proposal is just one example of what the bathroom could look like in tomorrow.

Q3 What is the bathroom today and what could be the role of the bathroom in tomorrow's home?

The bathroom of today is formed by the regulations that controls its function and design. It was originally a room for personal hygiene which it is still strictly associated with. In several contexts as the regulatory framework and within construction it is referred to as a hygiene space, but what happens there is not only personal hygiene relating activities. These other activities may be somewhat hampered by the standard appearance of the bathroom, which may be seen as obsolete. Currently, the bathroom seems to have the potential to be something more. A number of examples point at that like lifestyle changes and the updated regulations that should include our responsibility in terms of water use and creating a long-lasting bathroom

The bathroom of tomorrow might be a room with the possibilities to be used as something more than a hygiene space, although it should still be possible to take care of the personal hygiene as well. Tomorrow's bathroom might not be just one space containing all of the bathroom relating functions but be separated to make the use of them more flexible and efficient.

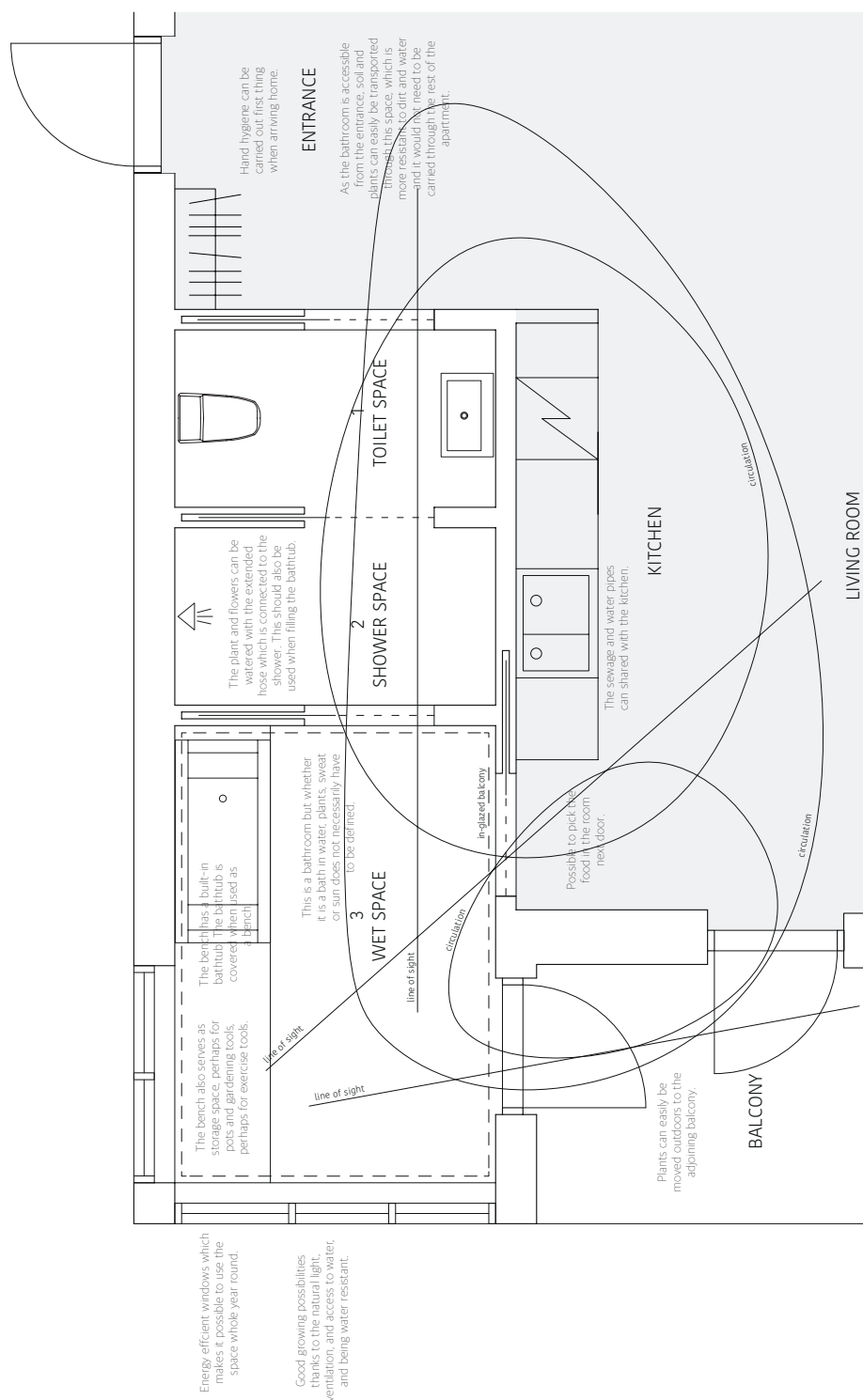
Tomorrow's bathroom might take a greater part in our homes. In the meaning of being able to serve more purposes. It might increase in size and become a place to stay at in a greater extent than today as well as benefit greater variety in movement patterns by incorporating circulation.

It might promote sustainability by being more efficiently designed in terms of water usage and providing innovative toilet solutions where people can dispose of their own body waste and use it to grow their own food.

The bathroom of tomorrow might be made from wooden materials as an example of doing what is not the standard and may benefit the feeling of being safe and warm. The question will further be answered through the design.

Design concept

The design concept is based on previously presented research on the bathroom. Qualities such as the sense of acceptance and freedom, tolerance to water and dirt are taken into account, as well as solving shortcomings such as inflexibility and darkness. It is developed to suit activities that take place in the bathroom but also for activities that could take place. The speculations of light and water limitation have also been incorporated, as well as the social aspect to make the bathroom a living space.



The design is based on a concept where the bathroom's functions are divided. They are still connected, placed in a row with a sliding door separating them. The first space contains a toilet and a sink. This space is accessed directly from the entrance where hand hygiene can be carried out first thing when arriving home. This could be seen as a result of the pandemic as hand hygiene was an important measure to reduce the risk of becoming infected or infecting others.

Through a sliding door opposite the door to the hall you reach a shower space. This space is larger than a shower in today's standard and should facilitate more than one person being there. It is beneficial for home care service and similar situations. Through a third sliding door you reach the third space, which is the room of possibilities, also called the wet space. It is a wet room that includes a sitting area, natural light and has one pass-through to the kitchen and one to the balcony. This space is partly like a glazed balcony. The windows can be opened and allow for light and air to enter. The windows should be energy efficient to the extent that it is possible to use this space the whole year around. This space has good growing possibilities thanks to the natural light, ventilation, and access to water and being water resistant. Plants can easily be moved outdoors to the adjoining balcony.

It is not for nothing that the kitchen is in close proximity to this bathroom complex. The sewage and water system could be shared and it would be possible to pick the food in the room next door. As the bathroom is accessible from the entrance, soil and plants can easily be transported through this space, which is more resistant to dirt and water and it would not need to be carried through the rest of the apartment. The plant and flowers can be watered with the extended hose which is connected to the shower. This should also be used when filling the bathtub.

The long bench is an architectonic quality. It also has a practical function as it has an in-built bathtub. The bathtub has a cover when it is a bench and uncovered when it is used as a bathtub. The remaining bench serves as storage, perhaps for pots and gardening tools, perhaps for several training tools. It should be up to each person how they want to use this space, but the premise is that it is durable, water is available and the possibilities for a bath. But whether it is in water, plants, sweat or sun does not necessarily have to be defined.

The doors to the toilet and shower spaces can be locked, the third space cannot be locked. Hopefully this space will be respected by the rest of the household when in use, but for most it should be a more open and interact with the rest of the social spaces in the home. The door between the toilet and the shower will have two locks so that the door can be locked from both spaces and avoid being disturbed. There is also a possibility to keep the totally open or the door between shower and toilet for example to make the space more spacious.

The bathtub is included in my design. As written before it is more water saving to shower than take a bath. The bathtub do have other functions than just bathing in water. First and for most it might be for bathing, play and relaxing but other possibilities like keeping drinks cold, handwashing of thing that are to large or to fine for the washing machine, be used for cooking relating activities like cleaning vegetables or store crayfishes or sauerkraut for a moment, or just as extra storage space.

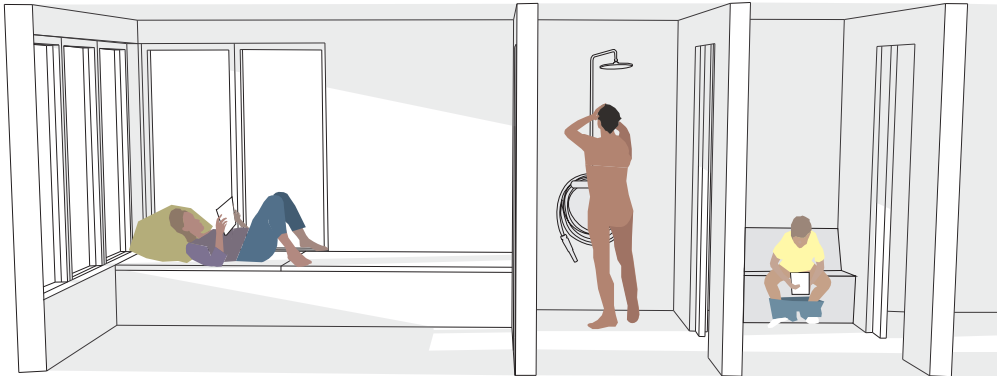
It is a conscious choice not to include washing machine in this concept. It seems unnecessary that apartments with two rooms and a kitchen or less are equipped with their own washing machine. They are both demanding in terms of space and consumption of resources.

All apartments should use the shared laundry in the building. However, larger apartments tend to have more space that could be used for a washing machine. Household in larger apartments might as well have more reasons for installing one inside the apartment, but it would be up to the household.

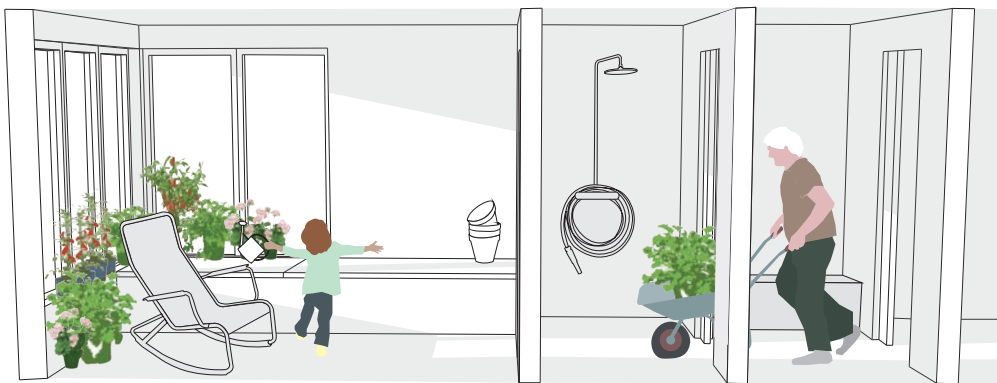
Within the concept there is a shared laundry room located on the top floor of the building. It would give it possibilities to a view, airing and drying the laundry outside. This could make the laundry room more attractive and more widely used.

The idea is that the water from the washing machines should be reused to flush the toilets. The washing machines are preferably located high up in the building so that the water does not have to be pumped up but rather run down and pass the toilets on its way.

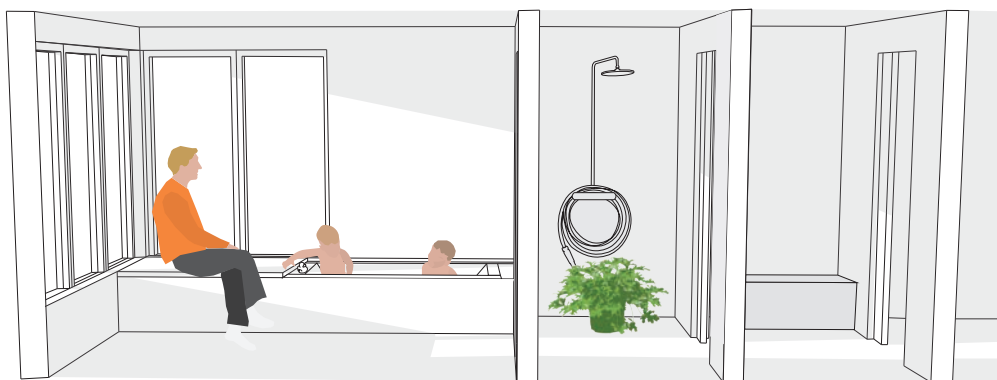
These perspective diagrams are based on the design concept and should illustrate what the bathroom could be in terms of use.



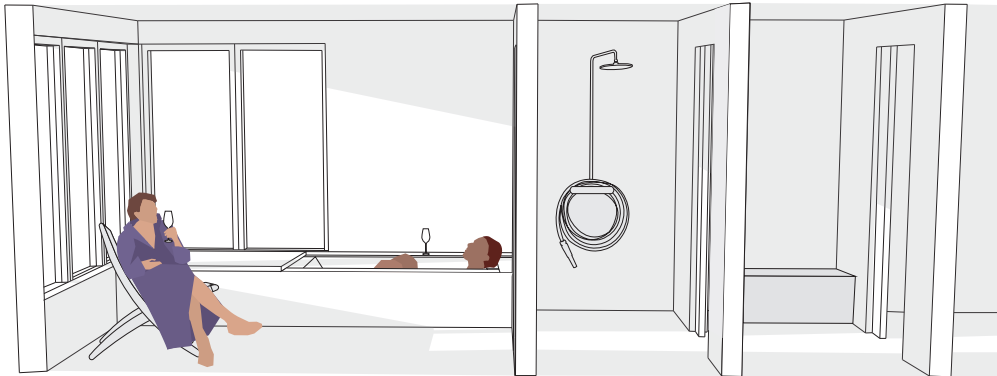
All three spaces could be used at the same time with or without closed doors. The functions could be more efficient used as separated but the privacy could be kept.



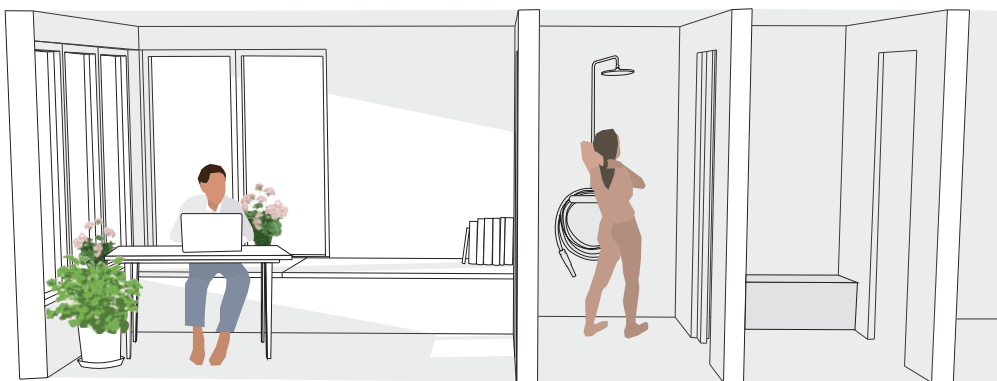
It is suitable for cultivation, gardening and growing food, for all ages since it is a room that can handle dirt and water. The extended water hose is connected to the shower and plants can easily be carried directly from the entrance door.



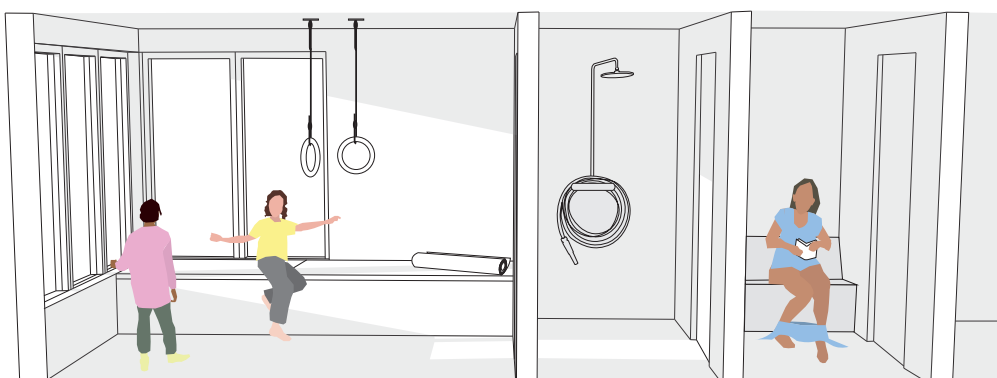
The bathtub can be an interior for children to play in and to get clean and parents might enjoy sitting in this open and bright room. As it is adjacent to the kitchen it may be possible to prepare food while keeping an eye on the bathing.



The bathtub could create the feeling of being a home spa and be the room for recreation and relaxing. It is enough space to enjoy the home spa together with someone and make it a social activity. It is still possible to enjoy the space on your own.



It is like an extra room that can be used as needed, in this illustration as an office. At the same time could someone else take a shower.



The illustration shows that it can be used as a home gym or as a room where children can play while mom has a quiet moment.

There is room for a table and a few chairs to eat and socialize around. This illustration brings to mind the glazed balcony.



Cutting hair and experimenting in similar ways works well in a durable space with access to water like this. The natural light might benefit the result.

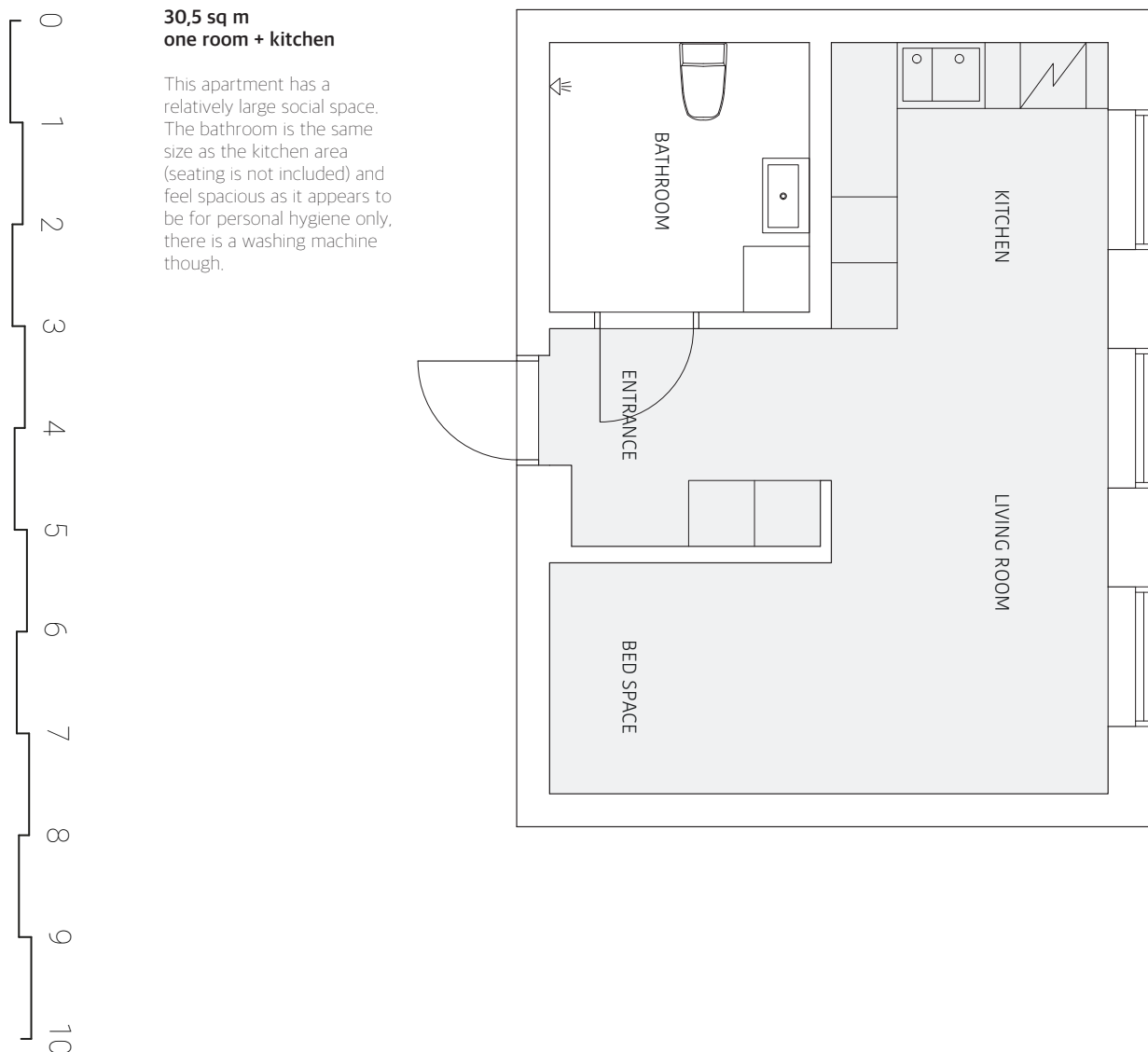


As the routines collides it is nice to be able to use the bathroom at the same time as the rest of the family.



Testing design concept

The design concept is tested by redrawing existing floorplans and include the new bathroom concept. Floorplans of HSB have been used which can be found in the previous chapter under The bathroom in newly built house. The size of the apartment and number of rooms have remained the same. The windows have been moved to a smaller extent but the facade walls are the same. The possibility to have a glazed balcony have been utilized and become part of the new bathroom in two of the examples. The dimensions of bedrooms, kitchen and living room have changed and the social space have decreased but is incorporated in the new bathroom.

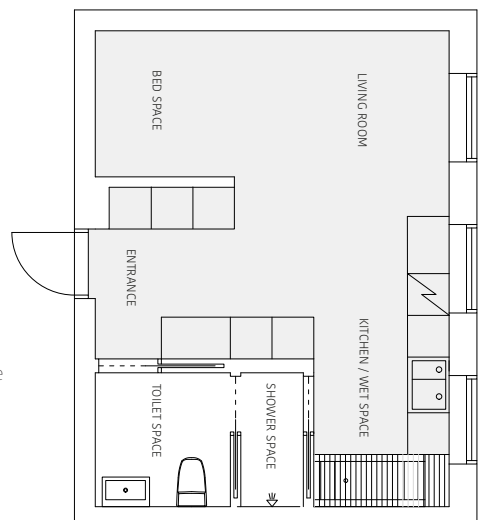




30,5 sq m One room + kitchen

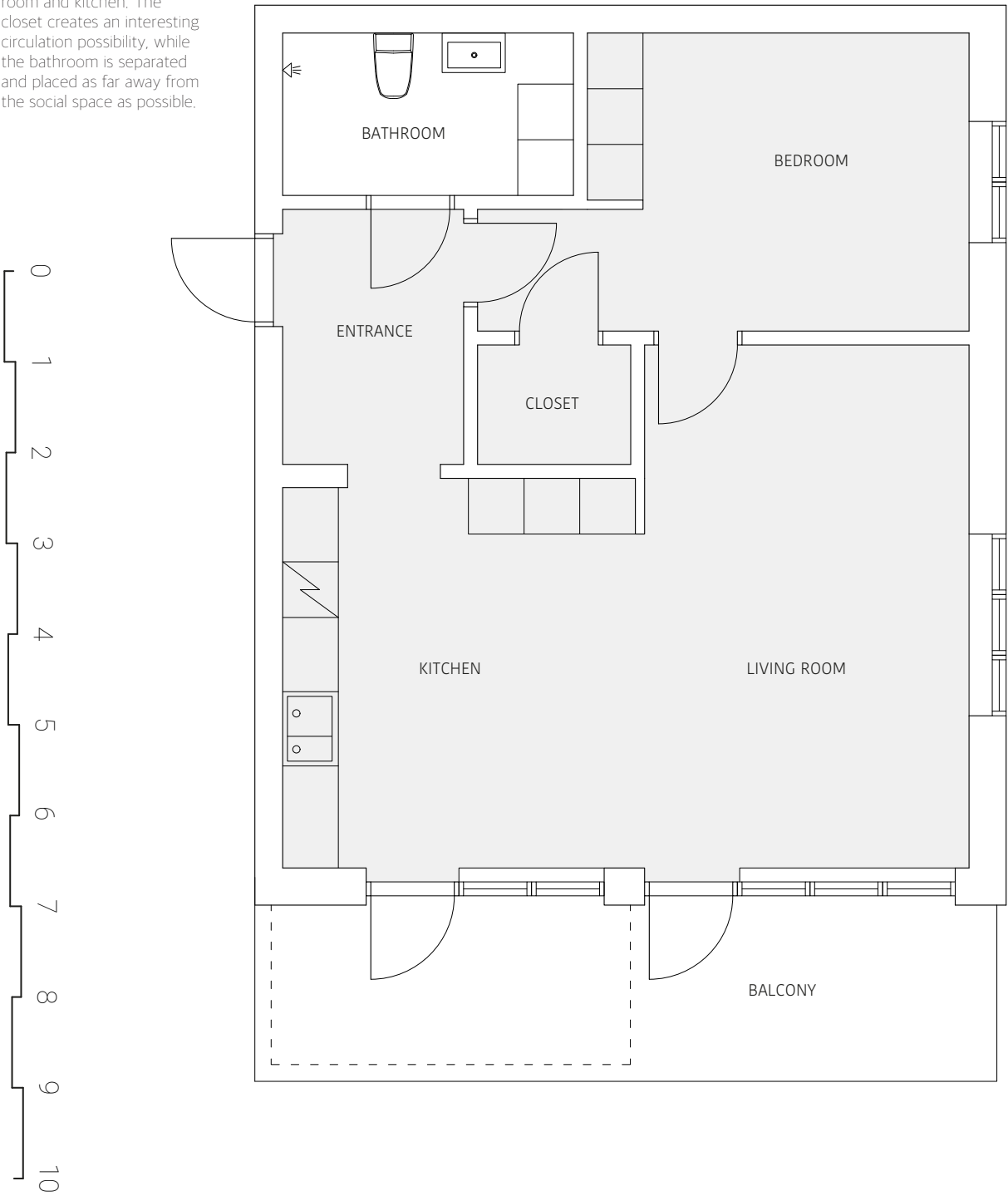
In the redrawn floorplan, the bathroom takes up a third of the entire apartment. This apartment do not have a balcony originally. However, the wet space could become a in-glazed balcony which would reduce the square metres of the whole apartment, as the balcony is not included. This would also be more beneficial if the space is used for cultivation. An outdoor area could possibly be added too.

Another solution could be that the wet space and the kitchen share space. The bench with the built-in bathtub would then become a greater part of the kitchen interior and perhaps more used during meals. This can be advantageous given the limited space available in one-room apartments.



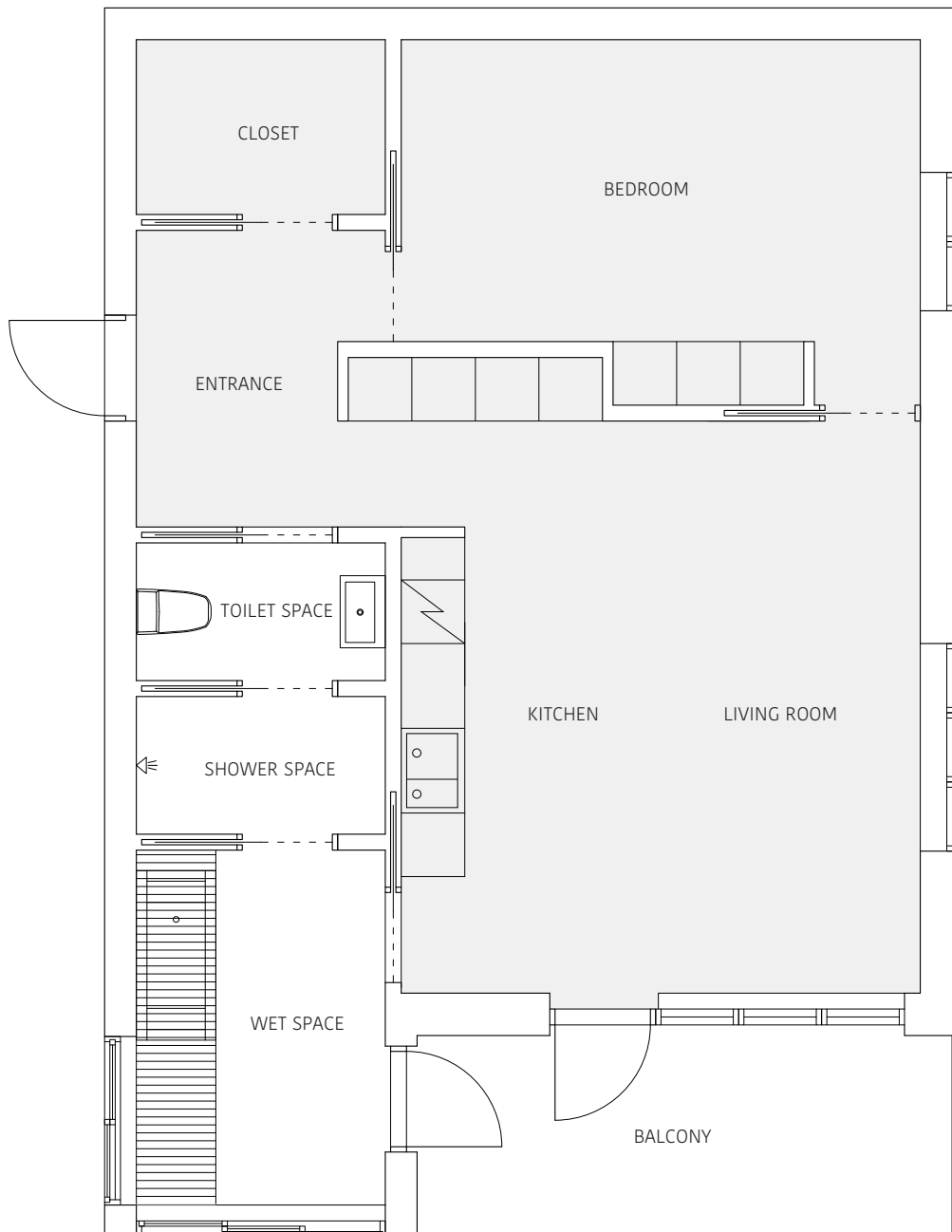
65 sq m
2 rooms + kitchen

This apartment has spacious social space and seems specifically designed to have a TV on the wall to the bedroom. The bathroom is smaller than in the apartment with one room and kitchen. The closet creates an interesting circulation possibility, while the bathroom is separated and placed as far away from the social space as possible.



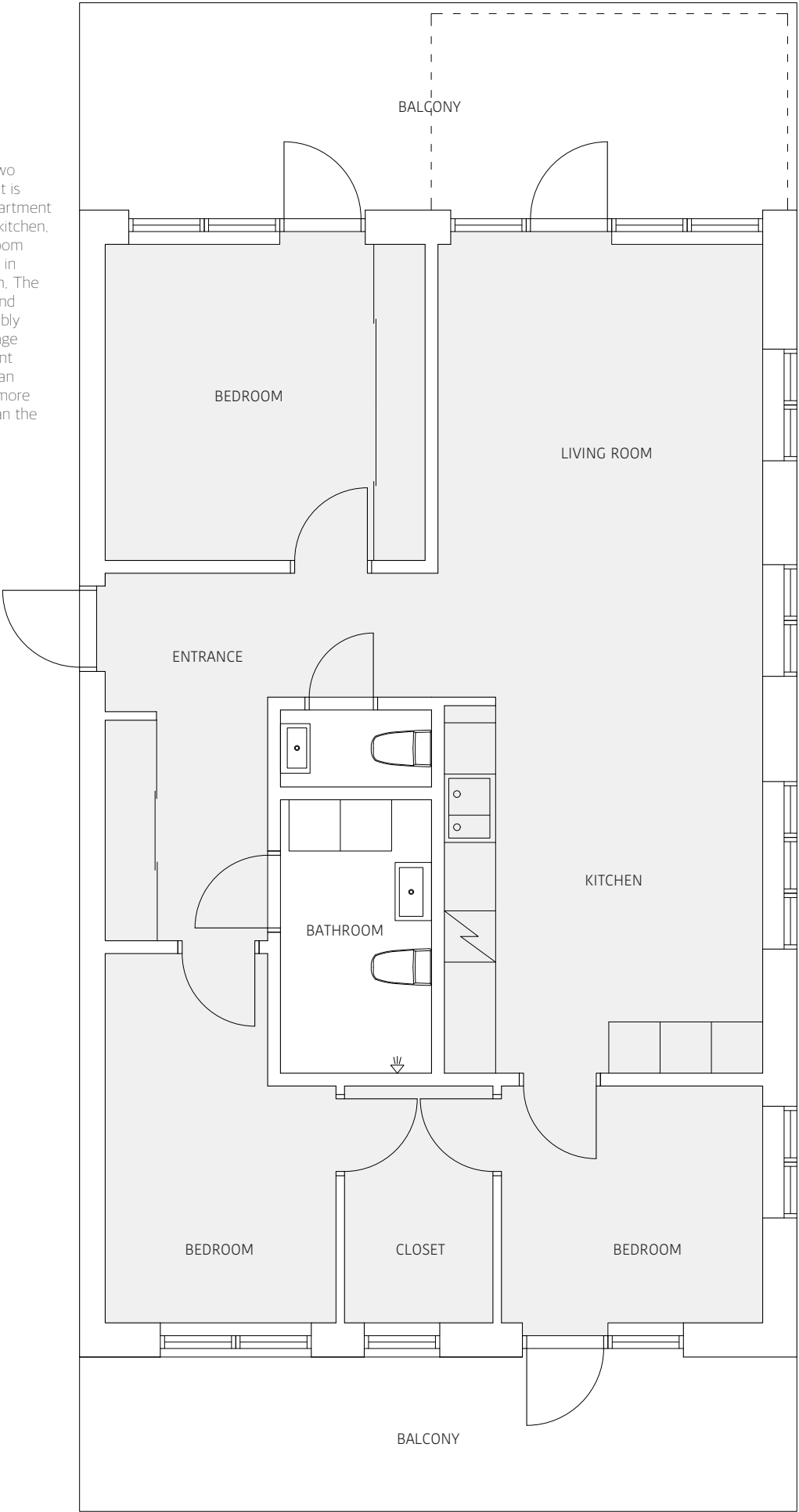
65 sq m
2 rooms + kitchen

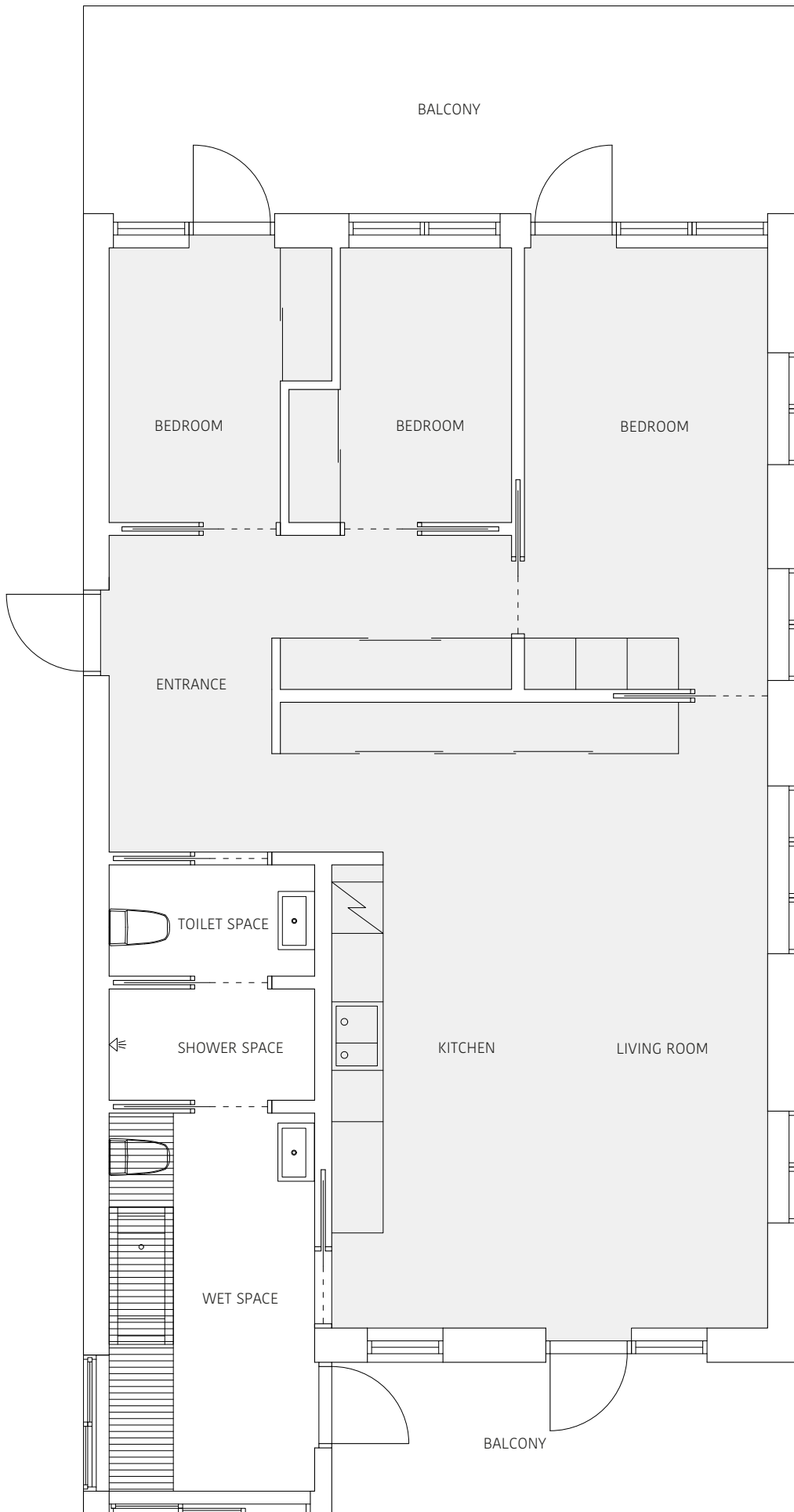
The new bathroom has become a part of the in-glazed balcony. It is now possible to circulate in a number of ways and the bathroom has become a part of the home instead of being separated. It is still placed in connection to the stairwell where pipes are mainly running. The social space has become a part of the bathroom as living room and kitchen have decreased in size. There is a line of sight through the social space including the bathroom which connect them visually.



96 sq m
4 rooms + kitchen

This apartment has two spacious balconies but is rather small for an apartment with four rooms and kitchen. It includes one bathroom and one toilet, placed in connection, bathroom. The kitchen, toilet room and bathroom could possibly share water and sewage pipes. This is a pleasant apartment, but one can ask if the closet is in more need of a window than the bathroom.





96 sq m
4 rooms + kitchen

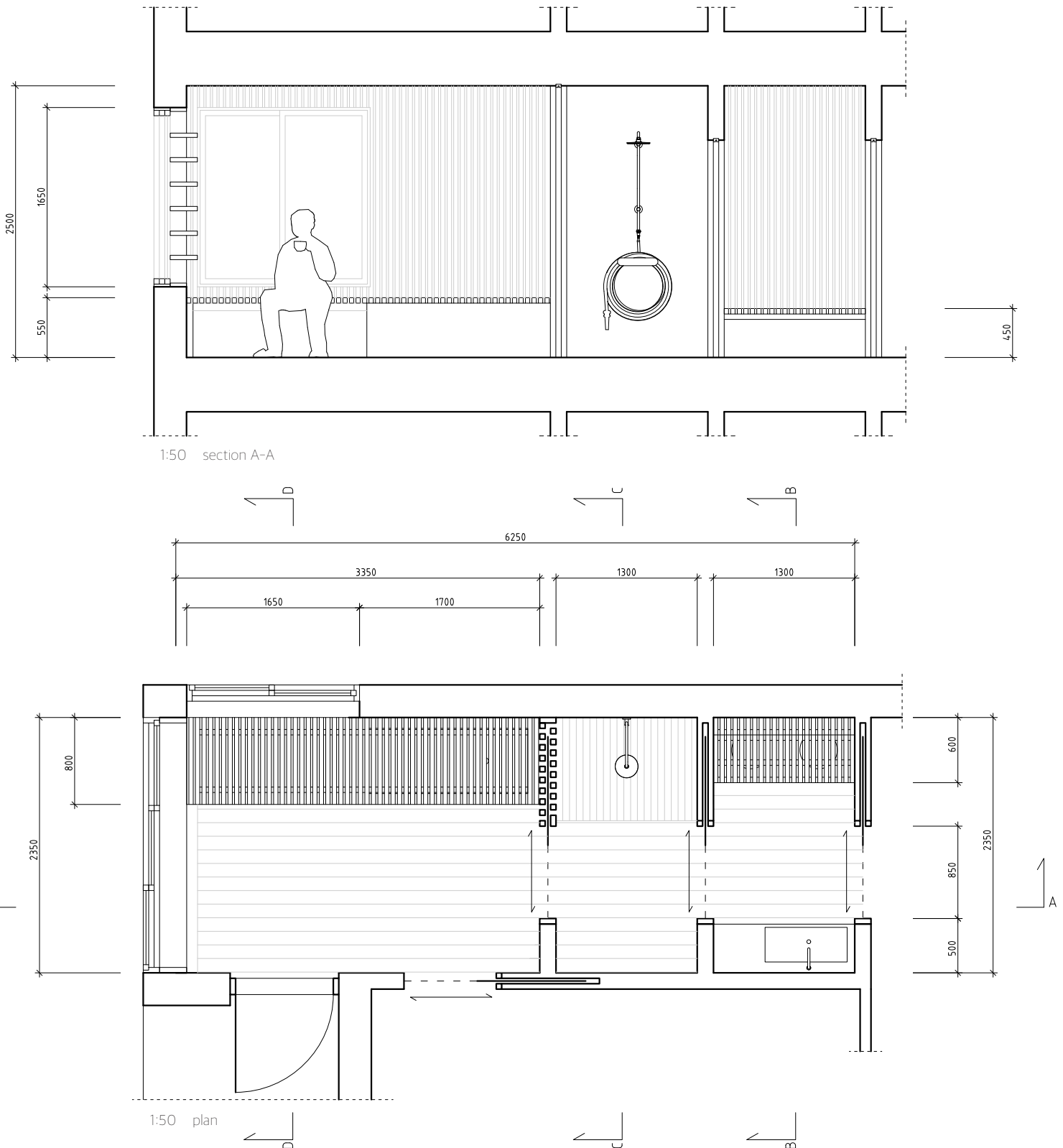
Even in this apartment the new bathroom has become a part of an in-glazed balcony and it is more involved in the movements of the apartment. There are a number of circulation possibilities. As in the original floorplan, there are two toilet spaces. One is in the first space aimed for the toilet: the other is in-built in the bench in the third larger space. Thanks to the windows smell can easily be aired out.

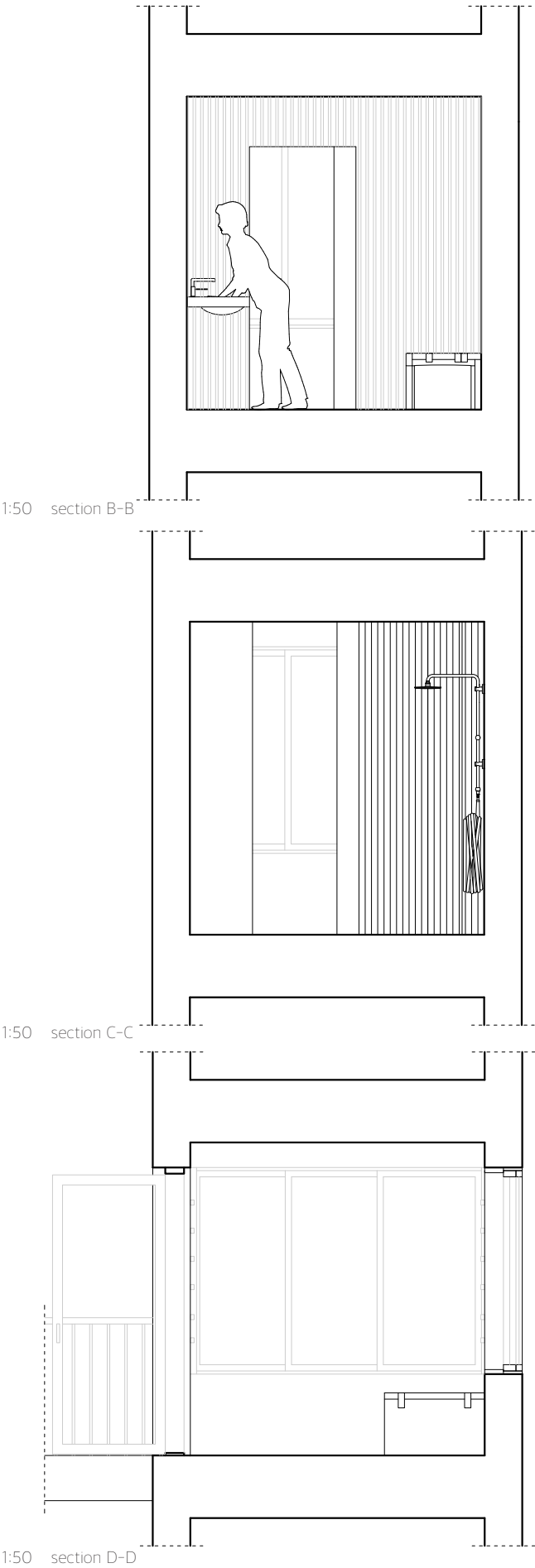
Outcome

The new bathroom affects the rest of the home. Given that the new bathroom is larger than the original one, the other rooms will decrease in size, mainly the kitchen and living room. Social square meters that were previously in the kitchen and living room move instead into the bathroom. The bathroom's qualities get more space which creates more possible activities and the bathroom's use has been extended. Including wet space in a in-glazed balcony could create a more space-efficient apartment and also give the balcony a greater purpose. The new bathroom also creates a greater variety of movement with the opportunity for circulation and sight lines.

Design

The design proposal is based on the bathroom in the redrawn apartment with two rooms and kitchen. It touches materiality and the technicalities of the bathroom, as well as the more specific interior as the bench and the wall between the shower space and the third space.





Materiality

Today's bathroom is usually covered with ceramics in form of tiles and bricks. Which is very durable but the disadvantage is that they are difficult to renovate or replace. Tile trends seem to be outdated relative quickly and personal opinions are also controlling how long they will stay at the surface of the bathroom.

In this design proposal, mostly wood will be used. It is not the material that is first and foremost associated with a bathroom. Water and wood in combination is behind most building damages in the form of mold, rotten wood and discolouration. However, there are other wet spaces that are often associated with wood, like saunas, hot tubs, boats and jetties which are normally made of wood.

The materials used in a bathroom have an essential effect on the feel of the space. Since it is a room where people often spend time without clothes, a warm feel can be beneficial. Wood is often perceived as a warm and natural material. It is generally not a heat conductor but retains warmth for a longer time. Unlike tiles which can be perceived as cold against bare skin. And floor heating is a function that is often placed under tiles for added comfort.

The colour and scent of the material can also create different associations. Such as warm shades give a warming perception and the scent of wood could be associated with the forest. Materials can also be associated with something specific, like tile is strongly associated with wet rooms, durability and water spills. Wood is often associated with something natural and ingenious. By using mainly wood in the design should expectantly give a warm and kind feel but also showing something different from the standard.

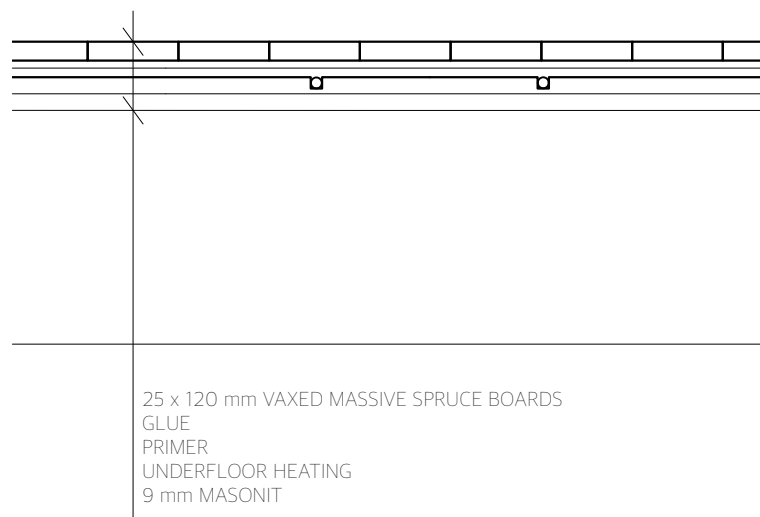
Wood species have different resistance to water, while the wood material can be treated with oil, varnish, heat or similar to become more resistant. Oak is generally a wood species used in structures and in places exposed to a lot of moisture, like in boats, wine barrels (also for taste) and window frames. The sauna, on the other hand, usually has walls and seating made from pine or aspen. If Aspen is given space, it dries easily after being exposed to moisture (Träcentrum, n.d.).

Pine and spruce are Sweden's most common wood species and therefore also cheaper, they have a relative good moisture resistant and spruce is often used in outdoor bath tubs for example. Teak is considered to be one of the most moisture resistant species and has a low risk of rot. However, it does not grow in Sweden but mainly in Asia. Shipping it here would have an environmental impact, as well as a lower sense of authenticity. A material that comes a long way often means less control. You can not be totally sure about how it has been grown, processed and worked with compared to trees that have been grown and cared for more close by.

Floor heating can be installed under wooden floors if the temperature does not exceed 27 degrees, if so the wood could crack. By having heat under a wooden floor in a wet room would help the wood to dry between soakings. It is essential that wood is not constantly wet, since it often is the cause of rot. This is why you almost never see a rotten sauna because the heat help the wood to get dry. On the other hand would be to dry the wood could risk to crack, which mean that the wooden bath tub and the sauna needs to be used every now and then.

There are examples where wood is constantly in water, such as underwater wooden structures. This works for some types of wood species such as the previously mentioned Oak, as well as Alms, some wood species even get more durable being in water.

According to the GVK, wood can be used to the same extent as ceramic materials, provided that the underlying structure is protected from moisture. It is the waterproofing layer under the wood that should be the primary protection. The översta lagret ska dock inte påverka tätskitet vid montering eller renovering (GVK, 2017).



1:10

The materials in the design

The floors are made of spruce with underfloor heating. It is treated with hard wax oil which makes it relatively water and wear resistant. The gaps between the floorboards are sealed to prevent water from getting through. A waxed floor requires some maintenance but depending on how it wears. However, the surface is smooth and easy to clean. If it would be damaged, it can be spot repaired.

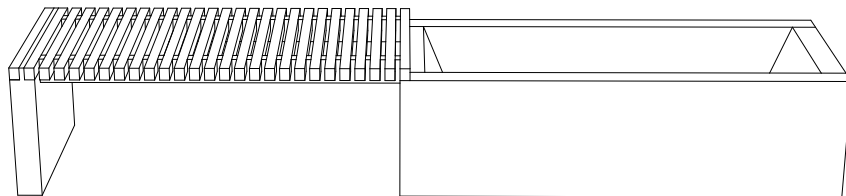
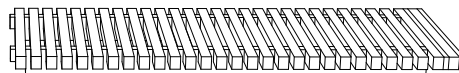
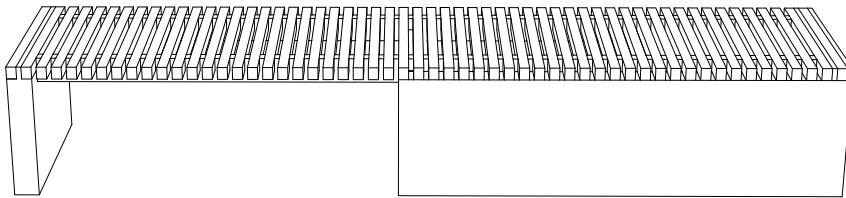
The walls and the furnishings such as the benches are made of aspen covered with oil which gives some resistance to moisture.

The wall of the shower space that is facing the larger space is made of wooden bars and will be partially light and sound permeable. The bars are placed with a gap in between in two rows with a slightly dislocation. This will allow light to pass through without being visible during the shower. This is done to strengthen the connection between the spaces and to provide the shower space with natural light and good ventilation.

These two spaces will share sound without losing visual integrity; thus, the conversation can continue while someone showers and someone else lies in the bathtub. The wall towards the toilet space will on the other hand be closed and consist of stone material. The floor in the shower area is a wooden grid where the water easily can drain down to the well. This grid is made of spruce and slightly raised to give it room to dry. It could also be removed to facilitate cleaning.

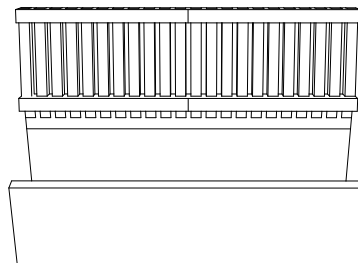
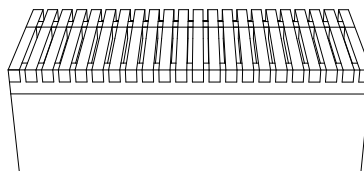
Spruce and aspen are relatively light materials that provide the spaces feel more spacious. Unlike Aspen, Spruce has often a great number of knots, which gives the floor a variety in its appearance and makes wear and tear potentially less visible. Spruce boards run through all three spaces to create coherent feel. The pattern found in the benches is also found in the wall panels. However, the intermediate spaces accommodate wooden beams to smoothen out the contrast of the gaps and to avoid unnecessary and hard-to-clean voids.

The benches



bench containing bathtub

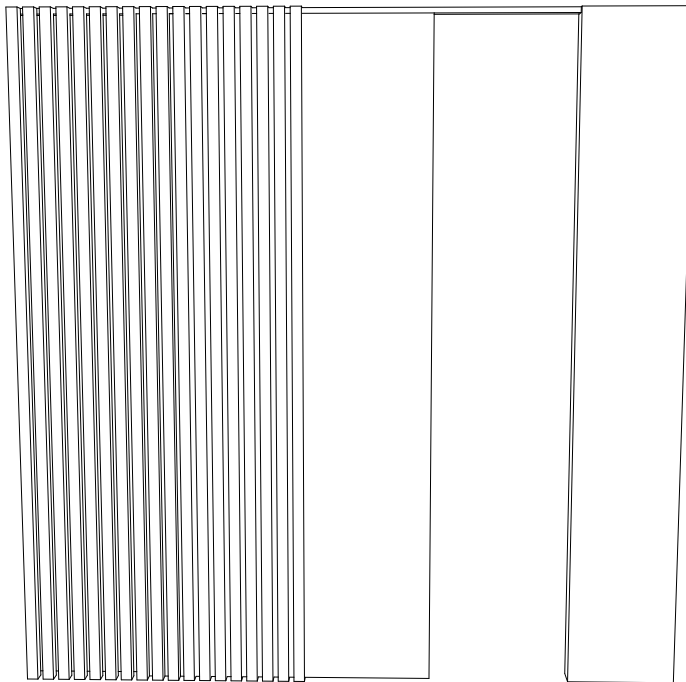
The bench containing the bathtub has a fully removable cover. The bathtub is made of Spruce. The wood is highly saturated in order not to soak water and the seams are sealed with waterproofing. It should be used with water every now and then in order not to dry out.



bench containing toilets

The bench containing the toilets has a lid that works like a normal toilet lid, preferably with an automatic braking effect.

The wall of light and sound



The sliding door slides into the space between the two rows of wooden bars.

Technicalities

This bathroom includes two toilets, in the same space. Placed inside the wooden bench in the first space, the toilet space. This wooden structure should be removable if the need for its use requires it (for example, to function with a wheelchair over a toilet seat), and to facilitate major cleaning. The toilet seats are built in to provide seating for more than one person, when brushing teeth or the like. As well as to give a different impression of what a room with a toilet could look like, perhaps it can be used as a rest room.

One of the toilets is a standard water-powered toilet. As far as possible, it will be flushed with residual water from the washing machines located on the upper floor in the building (conceptual).

The other toilet is an incinerator toilet. The advantage of this one is that it is not water driven and the waste can be used in the earth of cultivation. It can be used 100-130 times before it must be emptied. Which is almost once a month if it is used half of the times of a household with two persons. The amount of waste that have transformed to ash is a few deciliters per person.

It is driven by electricity, preferably renewable from solar panels installed on the roof of the building. It requires good ventilation and advantageous is the bathroom adjacent to the stairwell where most of the instillations are often found, so also ventilation pipes to the incineration toilet.

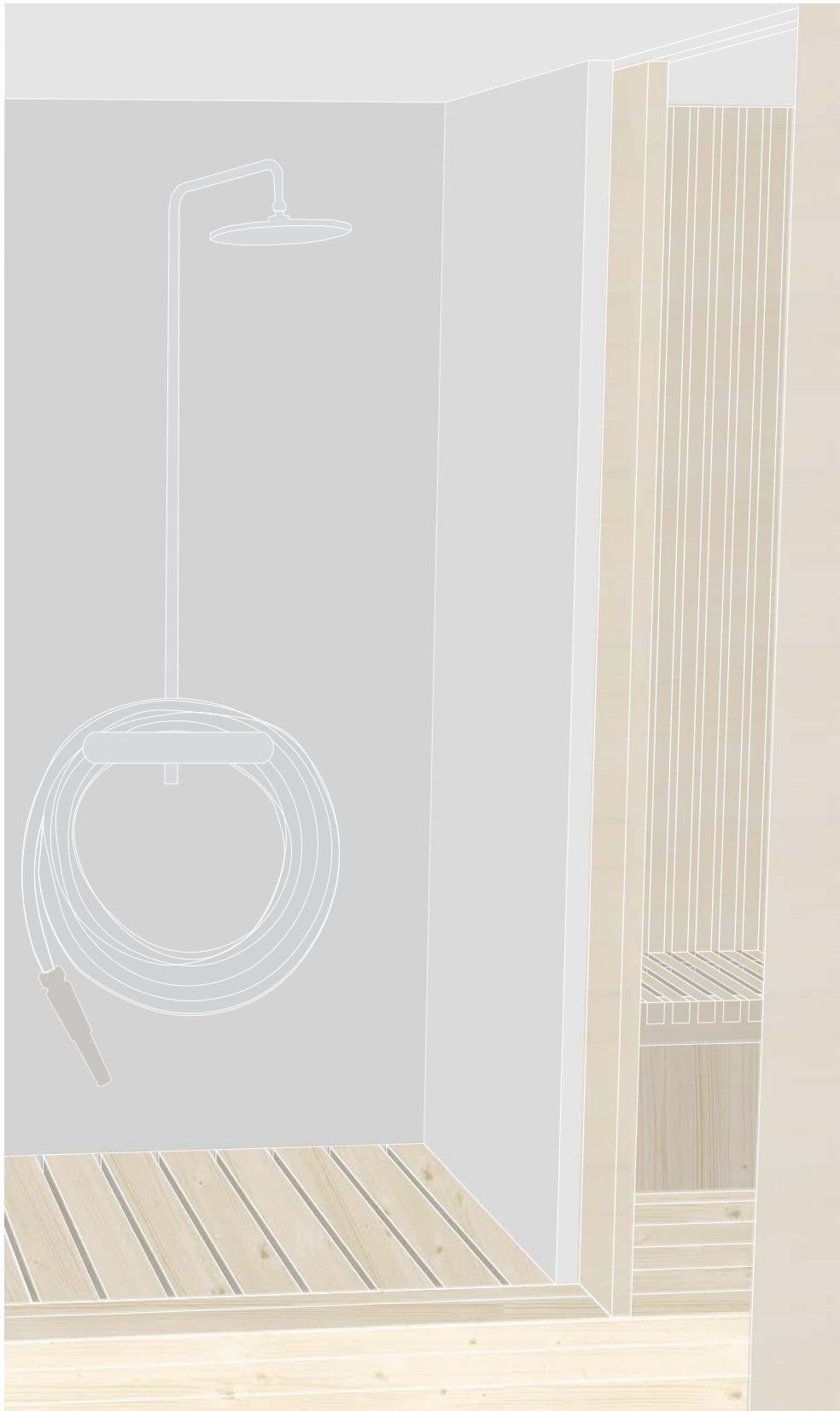
The potential of an incineration toilet is that the load on the sewage system can be reduced, and the waste can be used within the walls of the home. On average, a person uses 30 liters of fresh water for flushing and 15 liters of water for laundry every day (read more under Water and the bathroom). By using both toilets, water consumption can be reduced to 0 within these areas.

The shower is equipped with an irrigation hose to be used when filling the bathtub with water, as well as watering plants or the like. As it is connected to the shower, only one function can be used at a time. Hence there are three water outlets in the bathroom: shower, WC and sink but with more possibilities. Limiting the number of water outlets is based on the idea of reducing the average water consumption which is part of the speculation about the new regulation (read more under Reflection in chapter 3).

Perspectives



One room three spaces



Shower and toilet spaces



The room of possibilities

Conclusion

My hypothesis was based on an outdated view of today's bathroom. The project studied what the bathroom is and why it looks and functions as it does. This allowed to speculate on what would form the basis of any development of today's bathroom and exploration of the bathroom's role of tomorrow.

My conclusion is that the development of the bathroom has been limited by its original purpose – to serve as a hygiene room. It has remained similar in function and priority since it entered the home. There is no requirement of natural light and the activities associated with the bathroom is in need of privacy which explains why the bathroom is placed in the darkest part of the apartment. The bathroom's potential in terms of access to water, tolerance to dirt and water and being a room of freedom are predominantly and should not be overshadowed by its original purpose.

The general bathroom has mainly been influenced by political decisions regarding its design and function. These decisions have been based on or influenced by social events such as environmental issues, changed economy, technological developments, and welfare actions. Individual drivers have also had an impact, such as HSB and Gudrun Linn for example.

Even though the bathroom has been relative similar some changes have occurred, like the accessibility requirements that increased the size of the bathroom. These changes have not happened overnight but have been quite protracted. This could be due to the fact that the bathroom is part of a large system in which the whole population is involved. Water and bodily waste should be controlled and not too easily changed. On the other hand, we really depend on water to deal with this kind of waste. In the event of water shortages or with an increase in population and waste, alternative solutions might be necessary.

One finding that could affect today's bathrooms is the updated regulatory framework that will only include functional requirements and encourage creativity and innovation. Another finding is the pandemic's impact on our lifestyles, which have been changing both in terms of hygiene and how we utilize the homes. It also resulted in that holiday home sales increased, we demanded something more from our homes. Environmental changes are happening at the moment and could force us to be inventive about the bathroom's water dependency.

The conclusion is that the bathroom can take a larger place in our homes, both visually and functionally without losing qualities such as being a space for privacy, freedom, dirt and acceptance. Thus, the delimitation not to increase the size of the apartment even though the bathroom does, affected the rest of the rooms. Social spaces in the kitchen and living room have become smaller but have instead become part of the bathroom. The bathroom has become an extra room and new social uses have been created. It has the potential to be used as an office, gym, spa or room for cultivation. The fact that it is a space optimal for cultivation is a result of our time, to become more self-sufficient, which can promote the environment, the personal economy and the psychological health.

This project shows that the bathroom can be something more than a hygiene space. The design concept can be applied in several different apartment types and generate new designs and creativity of the bathroom.

05 DISCUSSION

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Discussion

This is a study of the bathroom in the apartment, its development, importance and future role. The study took off in the historical research of the Swedish bathroom, which proved to have precursors in the first societies on earth. The strong association with water is clear and has been a contentious discussed issue over the years and still ongoing. Since its entry into the home, the bathroom has been a room meant for personal hygiene, it still is a definite view of what a bathroom should be. The project has shown that its uses are many more than personal hygiene which is not visible in the current design or in the regulatory framework that governs it.

The purpose of the project was to challenge today's bathroom and explore what it could be tomorrow. The main objectives have been to visualize the bathrooms qualities, as well as shortcomings. As the project progressed, its potential to be something more than a hygiene space was enhanced. But changing something so fundamental and part of a well-developed system that includes the whole population as a bathroom, does not happen overnight. This is also evident in history such as the development of sewage treatment plants throughout Sweden which took several decades.

One of my main questions was to find out what driving factors have been significant for the design and function of the bathroom, which has been answered by doing historical research and an analysis of it. This was helpful in further exploration of the bathroom of tomorrow. How it could facilitate the exploration was the second main question and is answered through a reflection. The third main question is – what is the bathroom today and what could be the role of the bathroom in tomorrow's, which is answered in chapter four through a design concept and design. One can never accurately predict the future and the exploration of tomorrow's bathroom is a speculation based on the analysis of the research.

The historical research shows that the status of the bathroom has increased in parallel with the economic situation, both general and individually. However, the conclusion is that today's bathroom in the apartment is less prioritized than other rooms in terms of location and space which can be linked to its original purpose.

Within the walls of the home, there is often a more open approach to the bathroom and its use, as colliding routines result in the bathroom need to be used by several people at once. However, the today's design is more suitable to be used by one person at the time.

The freedom of the bathroom is a quality linked to privacy, the results of this project show that it can be achieved without placing it in the darkest part of the home, as well as serving as a passage room or an actual living room. This allows the bathroom to be used to a greater extent.

The project resulted in a design concept on which was based on the research. It was tested by being drawn into existing floorplan that should represent the standard floorplan of today. The new floorplans have other qualities than the existing once, like a more flexible efficient bathroom in terms of uses and being more adapted to the time of today. The point is not to compare the existing and redrawn floorplans but to show that the new type of bathroom could take place in today's standard floorplan.

The project has been partly based on my own bathroom experiences. As it is a relatively secret and taboo subject, it has been necessary to start from my own. Discussing my project has meant some questioning, such as bathrooms with two toilets, which has made me think a notch further. But this project should also generate new thoughts about the bathroom, which might increase more if choosing a more provocative proposal.

This regards not including the washing machine in the bathroom, which is more often than not included in today's standard bathroom in apartments. This was part of my delimitations and a position from a sustainability perspective. However, the washing machine in this project is conceptually linked to the bathroom, since the water driven toilet is flushed with its residual water. Materials and technology in the bathroom were not explored into depth. It would have been interesting to explore further and gain a broader knowledge that could have resulted in a stronger design. It would also have been interesting to do a deeper study on how the whole building would have been affected due to the design and function of the bathroom.

In conclusion, the bathroom has great potential to become a room of living, if you let go of the idea that it should only serve as a hygiene room. The definition of a bathroom should include many possibilities and this project just shows a few.

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Här gäller inga eder
ej heller hårda ord
Här gäller sitta neder
och hava tålmod

Här finner en vatten
av nästan obegränsad mängd
Men upp till var och en
att begränsa duschens längd

Här kan det frodas
Kanske något extra bra
för fröna i jorda
där rester jag la

Här vill en ha
en lugn och still stund
Här vill flera va
och en fick ingen blund