

HOUSING INVENTIONS 2012

Social hållbarhet och bostadsutformning

Positive Footprint Housing

Research by design av master studenter
Institutionen för arkitektur, Chalmers tekniska högskola



Workshop i masterkursen, volymstudie.

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Cover:
[Physical models from the studio work.]

Innehåll

Förord s 3

Den urbana bostaden;
utvändiga rum s 5

En bostad för olika hushåll,
i olika livssituationer s 13

Projektuppgiften s 19

Studentprojekt s 22

Förord

Detta är en sammanställning av studentprojekt från masterkursen Housing Inventions 2012, på Chalmers tekniska högskola, Institutionen för Arkitektur. Kursens inriktning är gestaltning av innovativa bostäder för ett framtida urbant boende, där en helhetssyn på hållbarhetsperspektivet är en utgångspunkt för arbetet.

Studenternas projektarbeten utgör en del av en undersökande studie med research by design. Studien är kopplad till ett doktorandarbete jag bedriver som är en del av forskningsprojektet Positive Footprint Housing, ett projekt i samarbete mellan Riksbyggen, Chalmers tekniska högskola, Göteborgs universitet och Johannebergs Science Park. Forskningsprojektet har som mål att utveckla hållbara, kvalitativa bostäder från ett urbant perspektiv. Detta görs via ett fullskaleprojekt, bostäder som planeras och byggs på en tomt i Södra Guldheden i Göteborg.

I mitt pågående doktorandarbete undersöker jag möjliga samband mellan flexibla bostäder och social hållbarhet. I studenternas arbete har därför frågor om flexibla bostädernas användning och påverkan på en livssituation varit en central fråga. I projektet har studenterna arbetat med bostäder som kan fungera för olika typer av hushåll i olika livssituationer. Bostäder som kan öka kvalitet och mångfald i boendet. Boende och bostad har studerats med det enskilda hushållet som utgångspunkt. Frågan om utomhusrummet i bostaden, det som idag många gånger är en balkong, och hur det kan utvecklas och tillföra fler kvaliteter till bostaden har också studerats.

Kan ett bra utomhusrum addera kvaliteter till bostaden och försvara ett tätt urbant boende med bibeckan/ökad livskvalitet? I det större perspektivet; staden och bostadskvarteret/bostadshuset, har gemensamma stadsrum och bostadshusets gemensamma rum utgjort tydliga frågor. Studenterna har arbetat med en del av Frihamnen, som ny stadsdel i Göteborg, för att ge faktorer som framtida klimat (vatten-nivåer) och tät, urban stadsmiljö en framskjuten roll i designarbetet.

Den här sammanställningen redovisar exempel från studenternas projekt där två av de frågor de arbetat med lyfts fram; bostadens utvärdiga rum och flexibla bostäder som kan erbjuda möjlighet att bo för olika typer av hushåll i olika livssituationer. Samtliga studentprojekt är presenterade i sammanställningen.

Arbetsgruppen i Positive Footprint Housing har tagit del av studentprojekten vid seminarier och kritiktillfällen. Intressanta idéer från studenternas projekt breddar på detta sätt inflödet av innovativa idéer i forskningsarbetet med utvecklingen av bostäderna i Guldheden. Förhoppningen är att ett bredare perspektiv ska föra vidare kvalitativa och nytänkande idéer in i det pågående bostadsprojektet.

Göteborg, Maj 2012,

Anna Braide Eriksson

Konstnärlig lektor och PhD student, Chalmers tekniska högskola

Den urbana bostaden; utvändiga rum

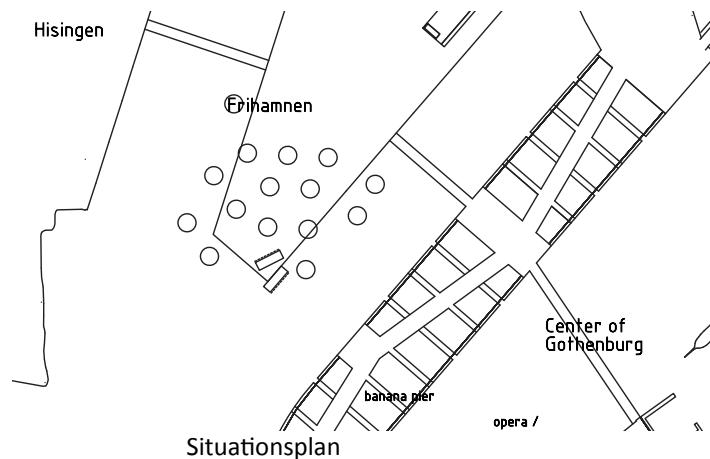
Kan utomhusrummet addera kvaliteter till bostaden för att försvara ett tätt urbant boende med bibeihållen eller ökad livskvalitet?

Idag pågår en stor demografisk transformation. Den innebär bland annat att vi har en pågående urbanisering i stora delar av världen. För inte länge sedan passerade den urbana befolkningsmängden den agrara (befolning i glesbyggd) för första gången i historien. I dag i Sverige prioriteras en tät stadsbebyggelse för att ta vara på redan utbyggd infrastruktur och byggbar mark. Fler människor än tidigare förväntas bo tillsammans i staden. Vilka nya krav ställer det på bostaden som en viktig, långsiktig resurs och investering i staden? För att ha ett bra liv med balans mellan arbetsliv, rekreation och socialt umgänge behöver vår närmiljö ge rum för dessa olika aktiviteter. Bostaden kan för många utgöra den miljö man återhämtar sig i och umgås med vänner och grannar. I samband med att behoven av bra bostäder ökar då vi förväntas leva tätare tillsammans men fortfarande har samma behov av avkoppling och trygghet kan också olika aspekter på bostadens kvaliteter undersökas för att finna nya utvecklingsmöjligheter. I många år fram till nu har balkongen, ett relativt litet utomhusrum, utgjort vår möjlighet att vistas utomhus i direkt kontakt med den egen lägenheten i ett traditionellt stadsboende. Markbostaden är genom tiderna väl dokumenterad som en populär boendeform. En kvalitativ faktor som påverkar livet i markbostaden är den direkta kontakten ut, i direkt anslutning till bostadsrummen. Utanför kan olika stora rum erbjuda möjligheter till rekreation eller social samvaro. Många lämnar sin stadsbostad för en markbostad för att bland annat söka en lugnare, grönlare och/eller rymligare bostadsmiljö, exempelvis då de får barn. Möjligheten att utveckla stadsbostaden/lägenheten så att en naturlig och generös balans finns mellan utvändiga och invändiga rum kan i detta sammanhang ses som en adekvat fortsättning på bostadens utveckling i en tät urban struktur.

Bostadshuset har en offentlig gård. Här rör sig både de som bor, de som arbetar i lokalerna och besökare till cafeet.

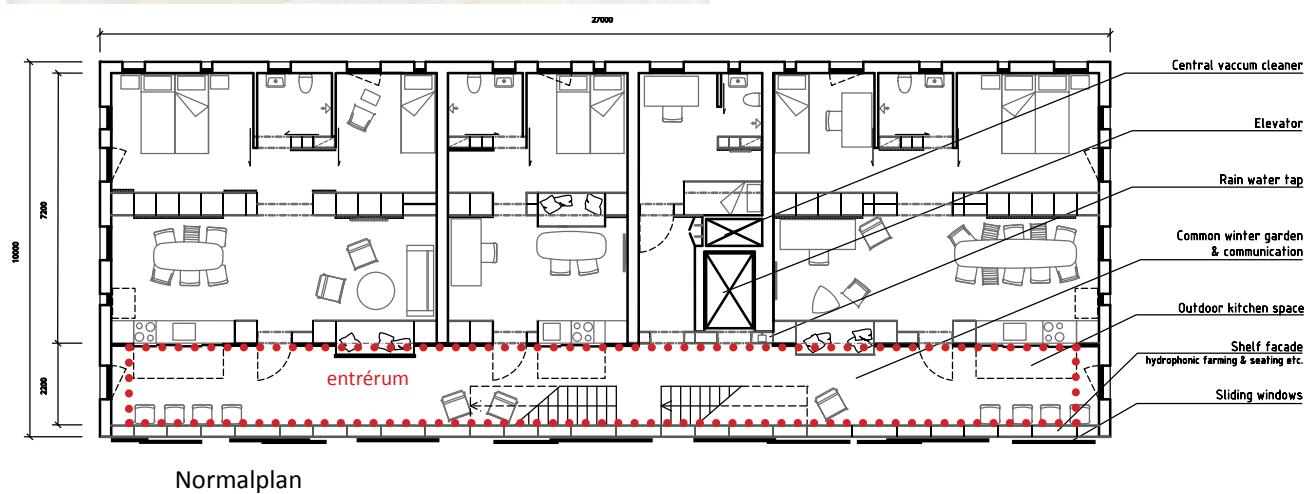
I kommande exempel presenteras kommentarer i färgad textruta

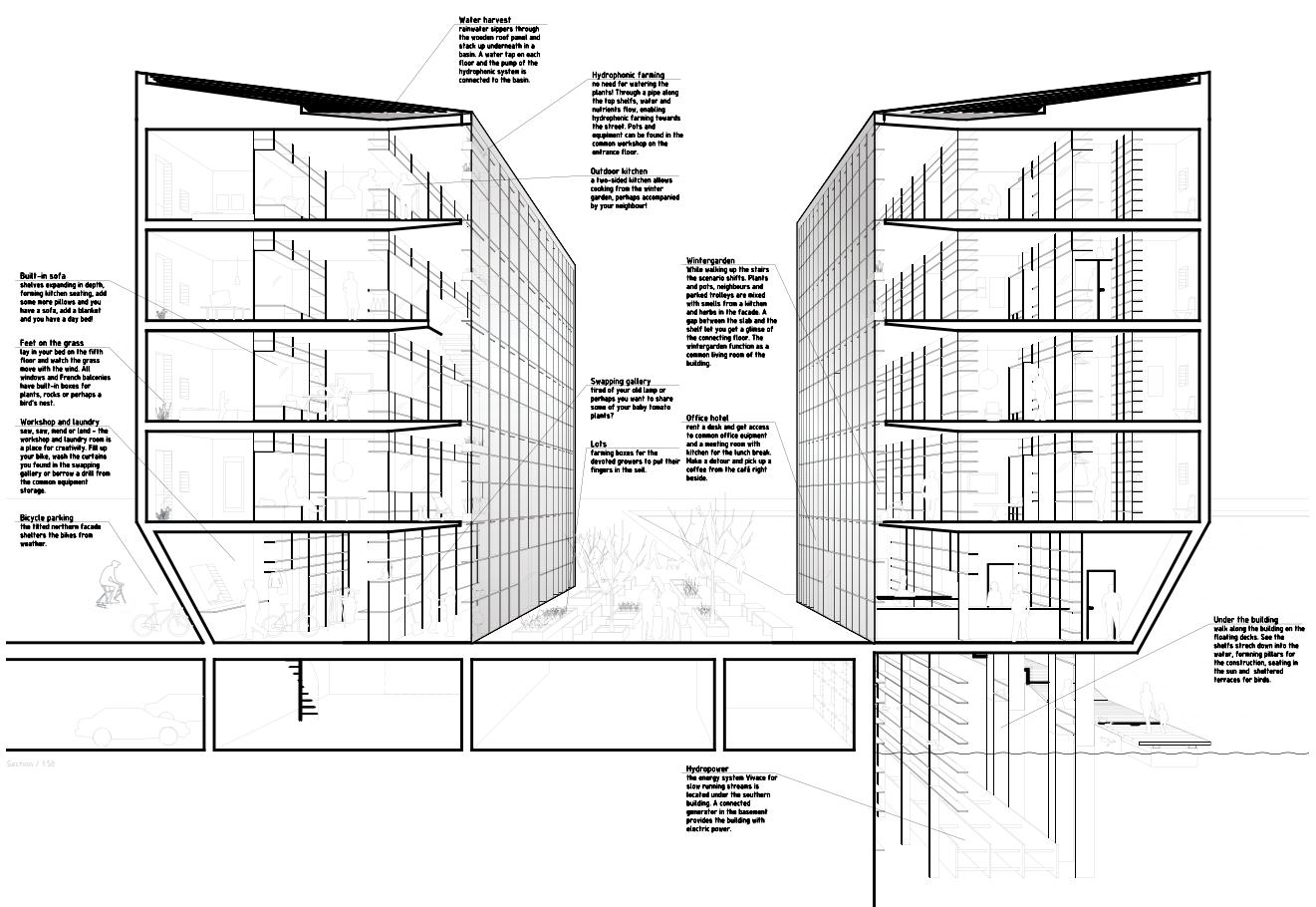
PATTERNS OF LIFE



Entrérum

Det som kunde varit en loftgång på varje våningsplan har utvecklats till ett stort entrerum, ett utomhusrum som även kan fungera som en halvklimatiserad zon med hjälp av skjutbara väggar. Rummet fungerar som mötesplats för de som bor på denna våningen. Varje lägenhet kan välja att öppna och låta bostaden bli en del av utomhusrummet. Kökets placering ger möjlighet att enkelt samlas kring måltider och matlagning utomhus eller inomhus.

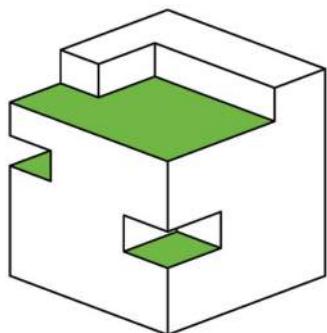




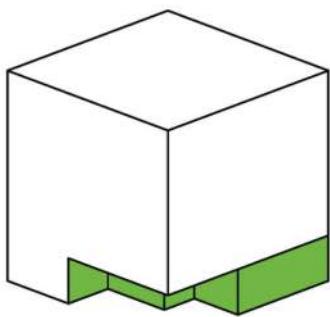
Sektion genom bostadshus och gård

Bostadshuset har en offentlig gård. Här rör sig både de som bor, de som arbetar i lokalerna och besökare till cafeet.

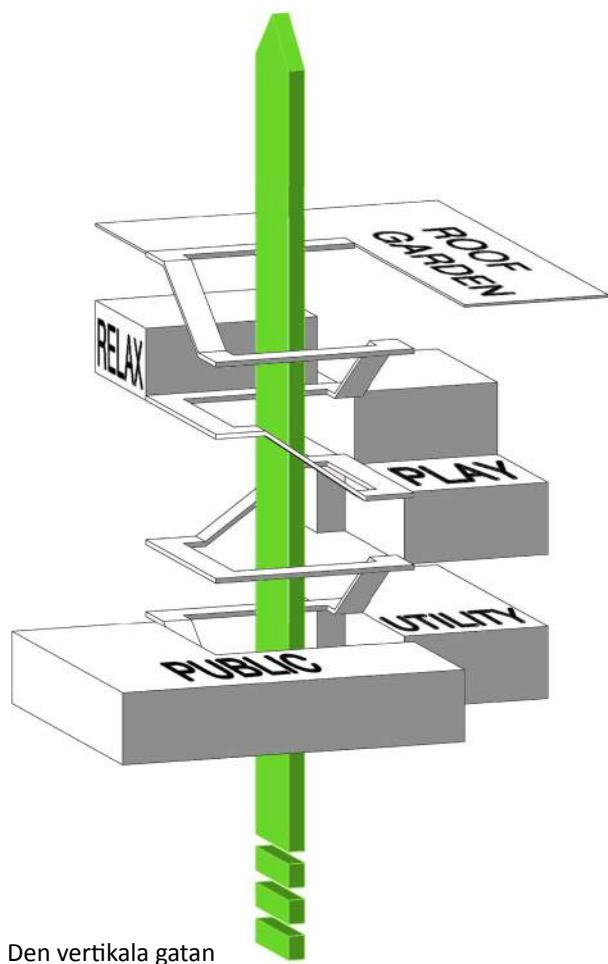
BLACK BOX



Utvändiga, gemensamma rum med olika lägen och karaktär i bostadshuset



I entreplan är rummen publika.
Här möts stad och bostad.



Den vertikala gatan

Husets grundstruktur är uppbyggd kring iden om en central, vertikal "gata" (trapphuset) som förbinder alla bostäderna (lägenheterna). Bostäderna beskrivs som grannskapet och vertikal kommunikation som den lokala gatan. Här kan de som bor mötas och här finns också gemensamma utvändiga- och invändiga rum för umgänge längs den lokala gatan (på olika våningar och med olika väderstreck).

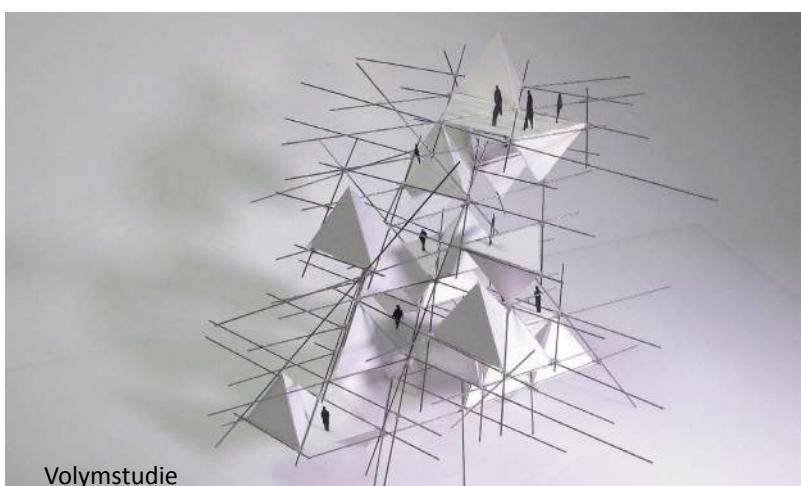


1m 2m 3m 4m 5m

RIVERLIFE

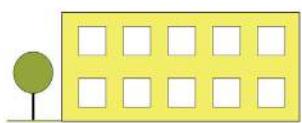


Situationsplan

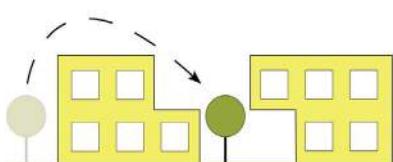


Volymstudie

Konceptide

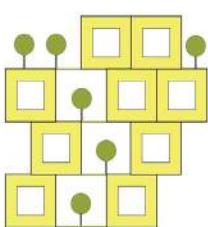


Traditionell modell för byggnad/trädgård.

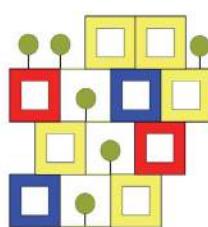


Omgjord modell för byggnad/trädgård.

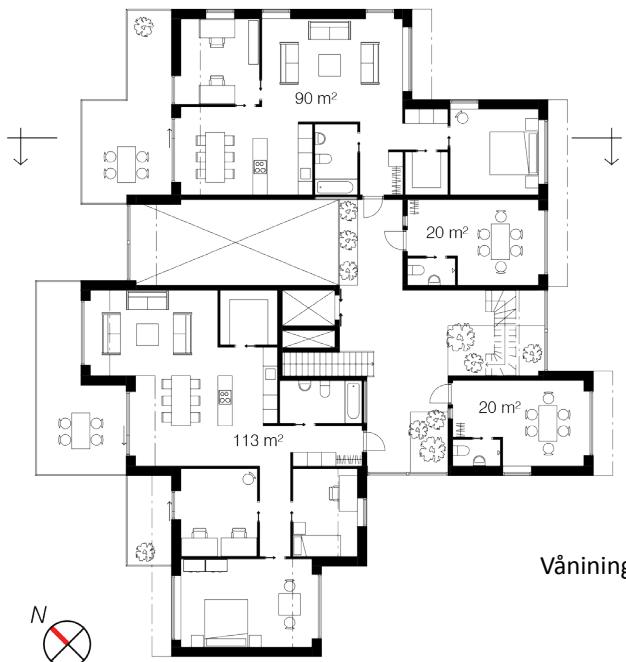
Utvändiga trädgårdsrum blir gemensamma, centrala delar av bostadshuset.



Lägenhetsmoduler och trädgårdsrum kombineras till en serie varierande rumssekvenser.



De olika volymerna kan ha en blandad användning av arbetsplatser, studentboende, vanliga lägenheter etc och bidra till mångfald..



Husets trapphus är utformat som en liten trädgård som kan fungera som mötesplats eller rum för rekreation och umgänge för de som bor i huset. Varje våningsplan har olika "trädgårdar" avseende storlek, väderstreck etc.

En bostad för olika hushåll, i olika livssituationer

Bostadsstrukturen, bostadens rumsstorlekar och rumskonfigurationen i bostaden kan ge möjlighet att använda bostaden på olika sätt för en mångfald av hushåll.

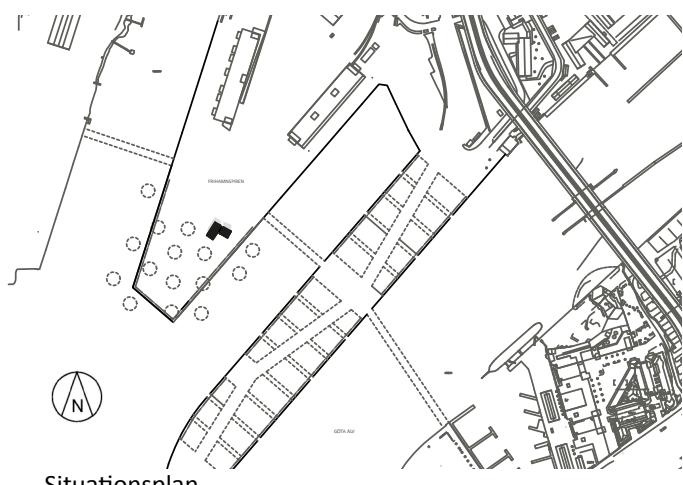
Idag i Sverige pågår en förändring i befolningsstrukturen. Bland annat får vi fler mindre hushåll, befolkningen blir äldre, vi lever i fler olika hushåll under kortare perioder i livet. I de bostäder som byggs ska många olika hushåll bo och leva under många år. Man kan exempelvis räkna med att ett bostadshus ska fungera under hundra år och att varje lägenhet under denna tid bebos av ca 12 hushåll, eller fler. I ett bostadshus med 35 lägenheter bor under denna tid 420 hushåll. Beroende på lägenhetsstorlek, pris och läge söker sig olika målgrupper hit. Just nu har vi bostadsbrist i Sverige. Detta innebär att alla inte kommer att kunna välja sin bostad utan får ta det som finns att få. Detta innebär att bostaden kan vara mer eller mindre möjlig att anpassa för de behov som hushållet har.

Normer, ekonomi och säljbarhet är några av utgångspunkterna då dagens bostäder tar form. Dessa utgångspunkter ger i många fall inte utrymme för reflektion kring mångfald och användbarhet utan utgår ifrån kärnfamiljen som det generella hushållet och de normer vi har för tillgänglighet och utrustning, som grundelement i utformningen. En bostad som kan anpassas och fungera för olika behov och för olika hushåll har inget utrymme i designprocessen. I projektet undersöks hur flexibla bostäder kan anpassas och fungera för olika hushåll under en längre tid. Denna studie förväntas ge möjlighet att jämföra kapaciteten på den flexibla bostaden med de bostäder som byggs idag.

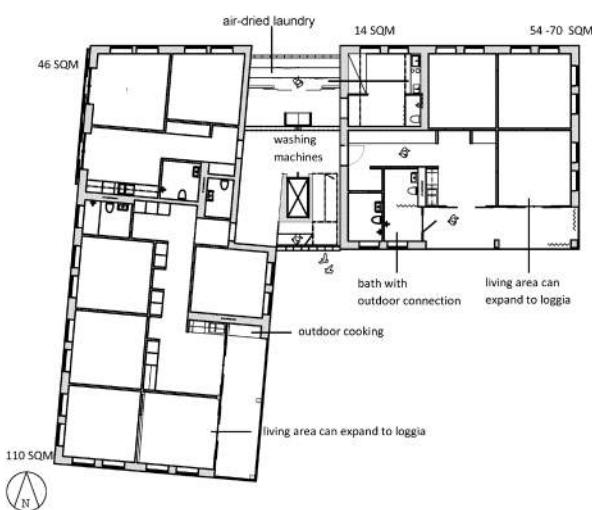
De gemensamma utvändiga och invändiga rummen får ett exklusivt läge i bostadshuset. De ligger som en första mötespunkt då du går in i bostadshuset. Här passerar många av de som bor i huset. En gemensam kvalitet för alla boende.

I kommande exempel presenteras kommentarer i färgad textruta

STRUCTURES FOR LIVING



Husets rumsstruktur är uppbyggd av generella rum (kvadratiska rum med storlek ca 4x4m). Dessa rum erbjuder en flexibel användning. Schakt för kök kan nås från olika rum och kökets placering är därmed valbar. Lägenheterna är planerade så att uthyrning av ett rum är praktiskt möjlig. En enkel rumsenhet (14 kvm) presenteras som en minimal, tillfällig bostad, även möjlig att slå ihop med intilliggande lägenhet.

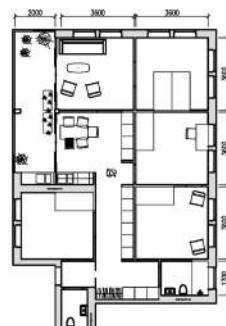


^ Husets rumsstruktur är uppbyggd av generella rum

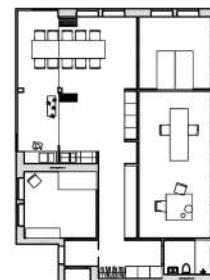
Studie av bostädernas användbarhet.
Olika hushåll och olika livssituationer >



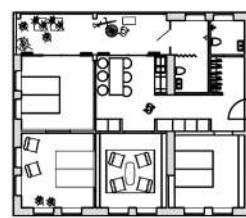
Varje lägenhet har en loggia



CASE STUDY: 110 SQM
A: Family of two parents and three young children.



CASE STUDY: 110 SQM
B: Fifteen years later, the children has moved out. The parents has one tenant, and has set up their own studio in the apartment.

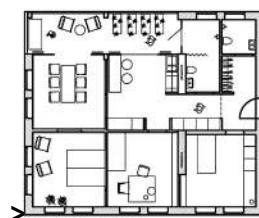


CASE STUDY: 70 SQM
A: Three couples living together with one room each and common kitchen and library.

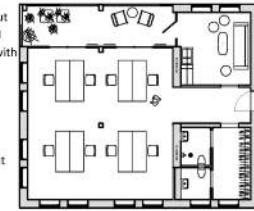
A: we used to live in a larger apartment on our own but actually it was mostly leftempty. It is great to share - always someone to talk to.

B: of course I feel bad about working so much, I wish I could spend more time with my son. But it's great to have mum here.

C: this is actually quite perfect for me. I hate cooking, I'm never at home and now I can eat out without being ruined.



CASE STUDY: 110 SQM
B: One couple with a young child and the grandmother. The grandmother and the child spend their days growing vegetables and cook meals for everyone.



CASE STUDY: 110 SQM
C: The apartment is transformed into an office when the employees spend a lot of time working outdoors. The doors are often left open the whole day.

THOUGHTS ON LIVING



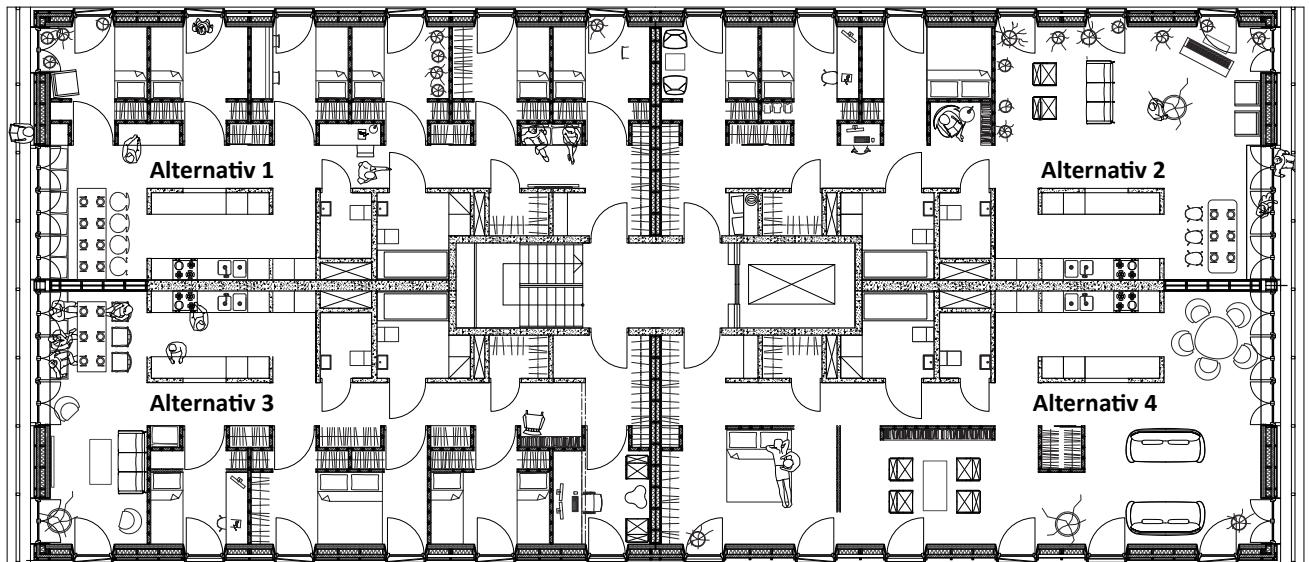
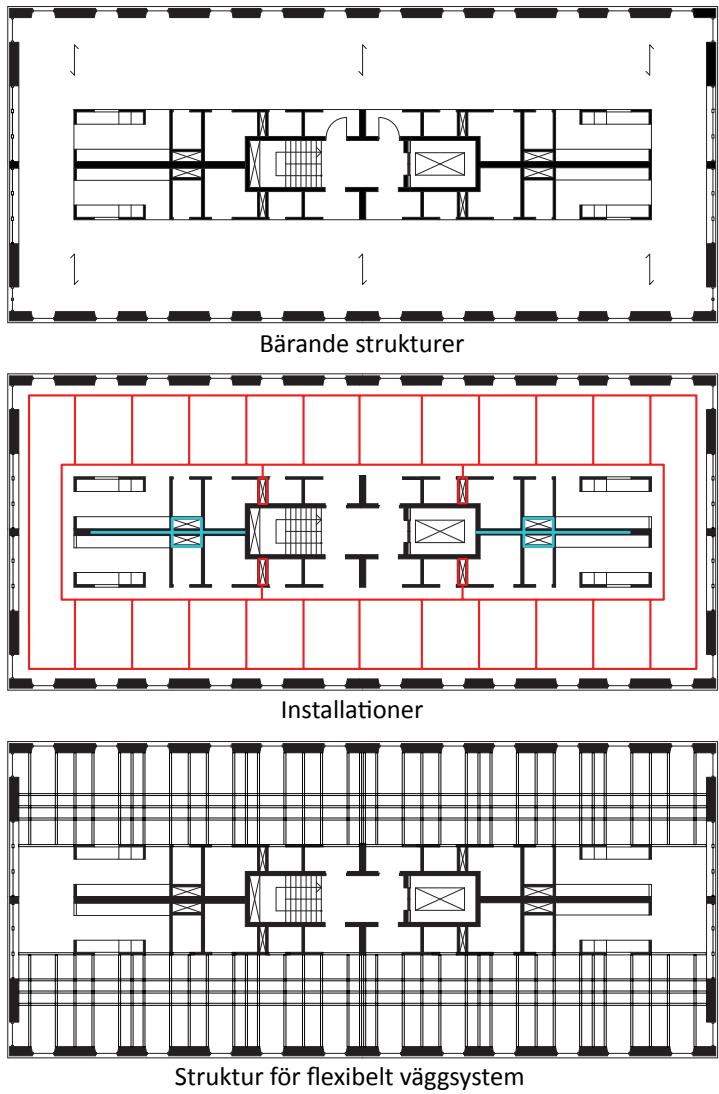
Lägenheterna kan delas i flera små rum eller några få rum med en mer öppen planlösning



Utrymmen för hall och förvaring kan även ge plats för mindre möbler och därmed möjliggöra en vrå för arbete eller bokläsning



Projektet arbetar med hållbarhet utifrån idén om ett minskat resursbehov. Bostäderna ger möjlighet för fler att bo på en mindre yta. Lägenheterna är flexibla. Kärna och fasad är bärande och lägenhetsplanen kan delas in i många små rum vid behov. Lägenheterna kan även delas in i några få rum med en mer öppen planlösning. De flexibla lägenheterna medger bostäder för en mångfald av hushåll. Utrymmen för hall och förvaring kan även ge plats för mindre möbler och därmed möjliggöra en vrå för arbete eller bokläsning.



Plan bostadshuset: Husets struktur och en väl studerad flexibel planlayout medger ett antal olika lägenhetslösningar.

Projektuppgiften

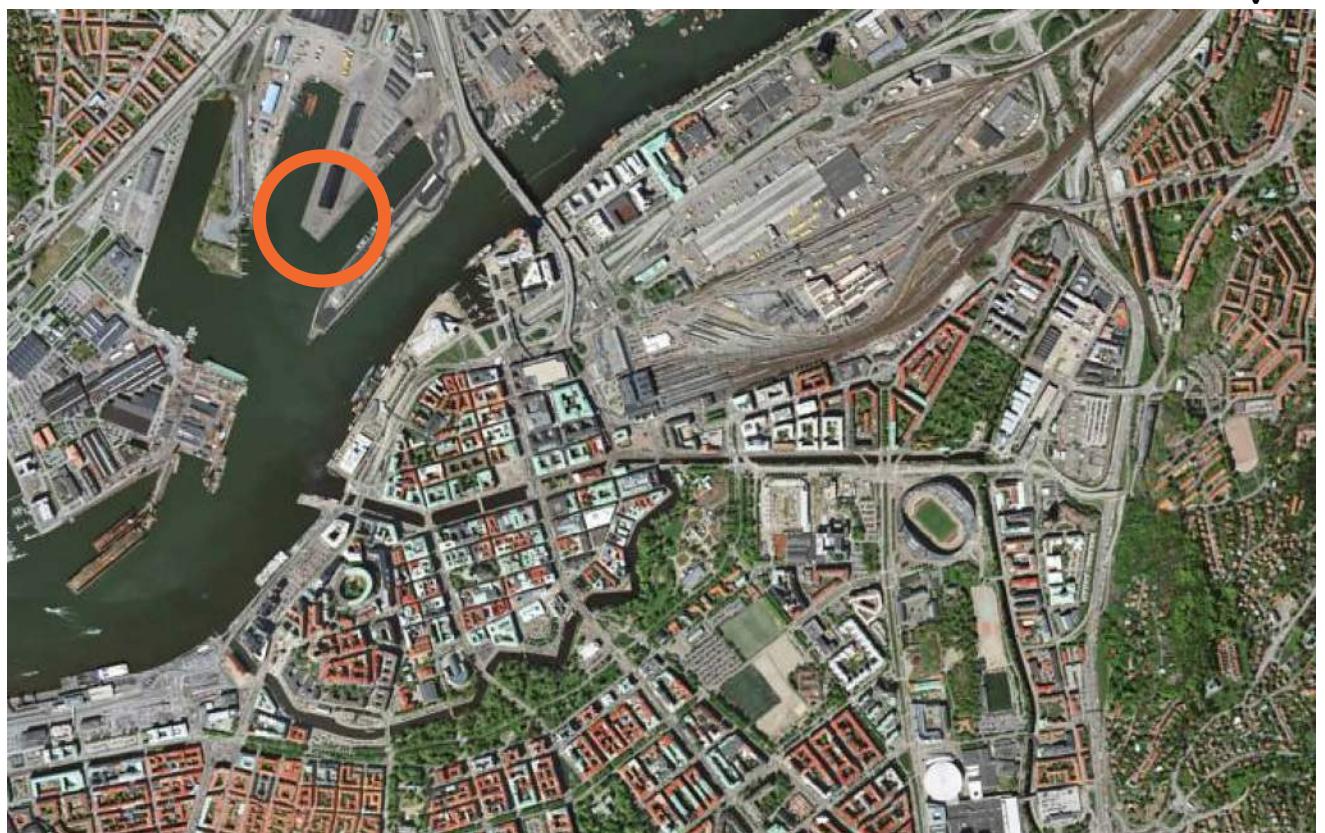
BAKGRUND

Studenterna arbetar med ett centralt stadsområde i Göteborg som skulle kunna utgöra en del av en bostadsutställning till stadens 400-års jubileum 2021. I denna kontext ska de utforma bostäder som kan möta framtida behov och krav på en hållbar bostad i en tät, urban miljö.

BOSTADSUTSTÄLLNING: FRAMTIDENS BOENDEVISIONER 2021 *Mångfald - Rekreation - Innovation*

2021 firar Göteborgs stad sitt 400-års jubileum. Frihamnen, en central del i Göteborg som idag utgörs av före detta industriell hamnmiljö, kommer att utvecklas till en ny stadsdel och vara en del av utställningen. Den nya stadsdelen ska representera ett framtida urbant boende som visar på hållbara exempel att bemöta kommande behov av mångfald och demografiska förändringar, kvalitativa boendesituationer i en tätare stad och klimatförändringarnas påverkan på byggd stadsmiljö i Göteborg. Nyckelbegrepp för stadsdelen är: *Mångfald - Rekreation - Innovation*

Bostäderna byggs i det som i framtiden blir en central, urban, tät stadsmiljö i Frihamnen i Göteborg. Det vatten nära läget kan ge stora kvaliteter i boendet men kräver samtidigt att hänsyn tas till framtida vatten nivåer. Kartan visar Göteborg med frihamnen och piren markerad.



FÖRUTSÄTTNINGAR FÖR UPPGIFTFEN

En tomtkarta visar de tomter ni ska bebygga. Denna del av Frihamns-kajen utformas som en parkyta för rekreation, med fria bostadsvolymer som angörs på småskaliga körbara vägar. Ni ska arbeta med en volym med måtten $18 \times 18 \times 18$ meter. Volymen kan ändra form, men ska till volymmått vara oförändrad (exempelvis kan måtten $22,5 \times 18 \times 14,4$ vara möjliga att använda). Detta sätt att arbeta tränar spaciell förmåga att studera en optimal struktur och rumskonfiguration innanför en definierad ram. Volymen studeras för att optimera bostadskvaliteter, byggnadskaraktär och byggnaden som en del av ett stadssammanhang.

UTFORMNINGEN AV DE NYA BOSTÄDERNA SKA VERKA FÖR EN HELHETSSYN PÅ HÅLLBARHET.

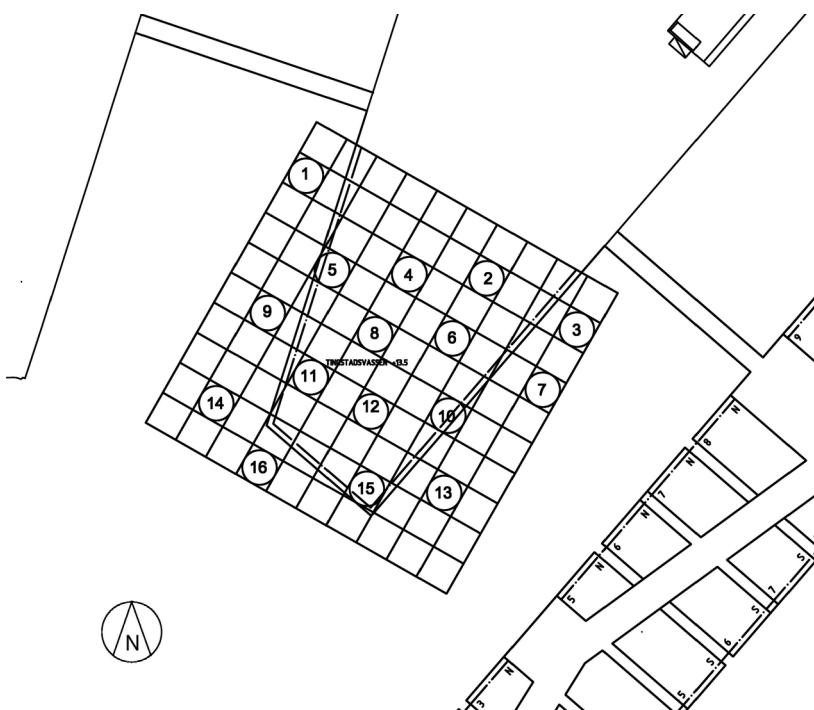
1 Social hållbarhet

- Bostadsstrukturen, bostadens rumsstorlekar och rumskonfigurationen i bostaden ska ge möjlighet att använda bostaden på olika sätt för en mångfald av hushåll.
- Alla bostäder ska ha både inomhus- och utomhus rum.

Kan utomhusrummet addera kvaliteter till bostaden för att försvara ett tätt urbant boende med bibehållen livskvalitet? Beskriv hur en familj bor kvar i sin bostad, hur kan bostaden anpassas för den nya situationen?

A) Två föräldrar, tre barn.

B) Barnen flyttar ut, farmor flyttar in eller föräldrarna har en hyresgäst.



Studenterna arbetar med en av 16 tomter på piren. Olika tomtlägen erbjuder olika möjligheter för bla utblickar och vattenkontakt.

2. Ekologisk hållbarhet

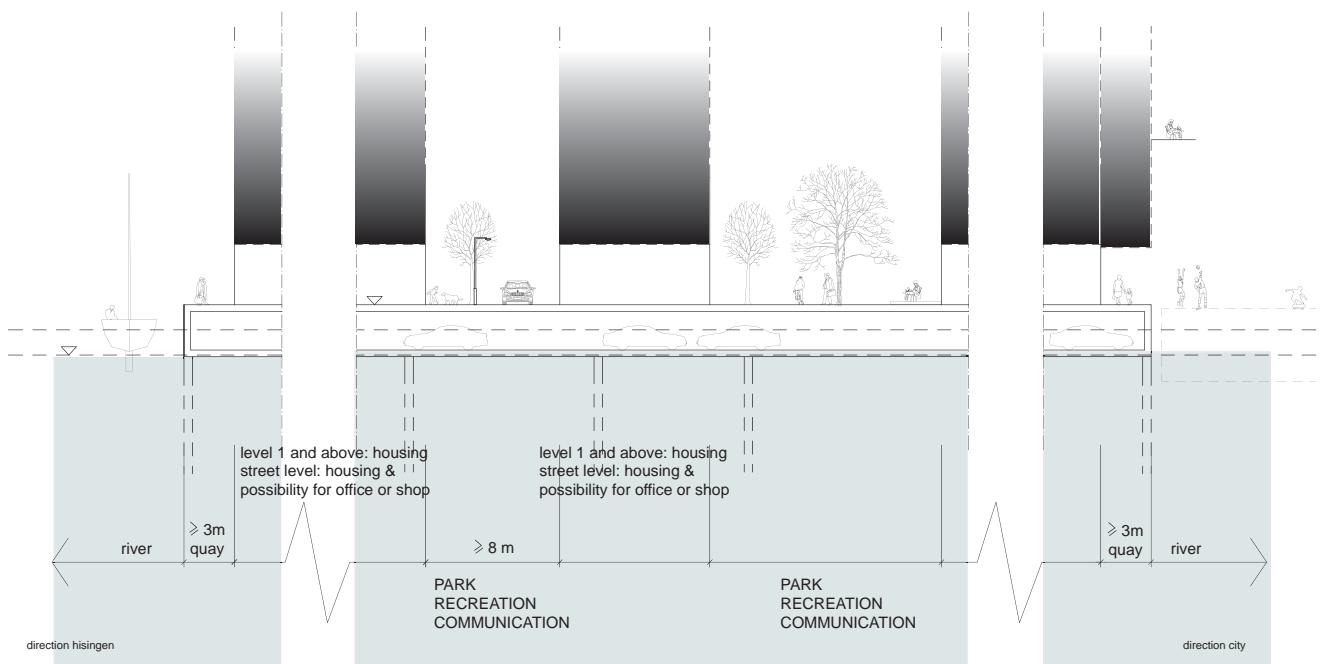
Arbeta med husets stomme, materialval och detaljlösningar som möjliga delar av ett hållbart ekologiskt bygande. Motivera dina val. Vilka system och konstruktioner har bostadshuset som sänker energianvändningen och minskar miljöpåverkan?

3. Ekonomisk hållbarhet

- Användbar och väl planerad lägenhetsyta kan verka för rimliga kostnader för den boende och lönsamhet för den som bygger. Lägenhetsstorlekar ska redovisas vid alla bostadsplaner. Det ska finnas möjlighet att skapa ett extra rum i bostaden (kunna sätta upp en vägg som delar ett rum till två användbara rum).
- En bostad ska undersöka begreppet; En minimal bostad för två personer.
- Beakta antalet lägenheter per trapphus då du utformar husets grundstruktur. Lägenheter/trapphus är ett mått på bostadshusets ekonomieffektivitet liksom storleken på de gemensamma ytorna.

4. Innovativa idéer för bostaden som en bra livsmiljö i en framtida tät, urban struktur.

Fritt område för idéer och undersökningar.



Principsektion genom piren/parken med bostadshus

Black Box

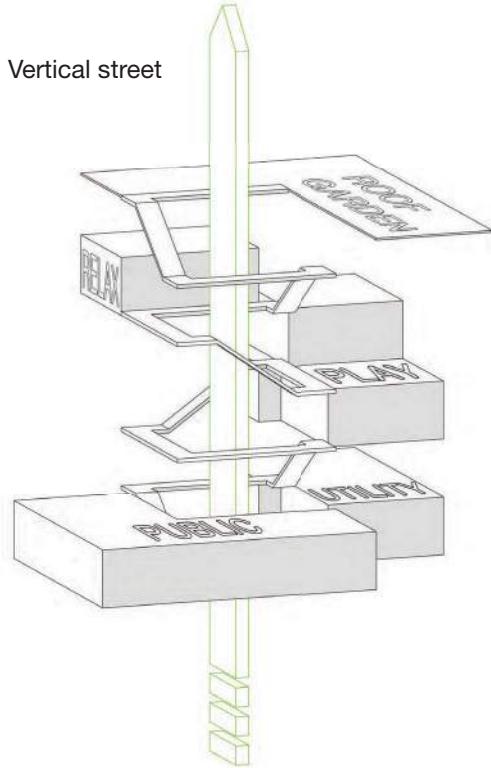
Frihamnen

Living in the city center of Göteborg is popular. The demand is high and the supply is low. As Göteborg approaches its 400 years existence, plans rise for the development of the old pier of Frihamnen. As a result of this we have been asked to propose a building for the area. The main idea of planning for the future is that planning is a prediction and it is impossible to predict the future. But in order for the building to actually be there in the future it has to last. A lasting building is a sustainable building. Sustainability is not just about being green or cradle to cradle. In our opinion sustainability is the right mixture of social, economical and ecological factors. Therefore our proposal involves the creation of a flexible building that meets all today's requirements and can be adjusted in accordance to the future changes. It is a systematic, modular design that, with certain adjustments, could be placed on multiple locations. It is designed as an entire neighborhood. The building is the neighborhood, the apartments are the houses, each with different qualities and sizes to accommodate a diverse crowd. The semi-public spaces creates the opportunity for the neighborhood to meet and interact and the public space on the ground floor enables interaction with the "outside".



Ground floor

Vertical street

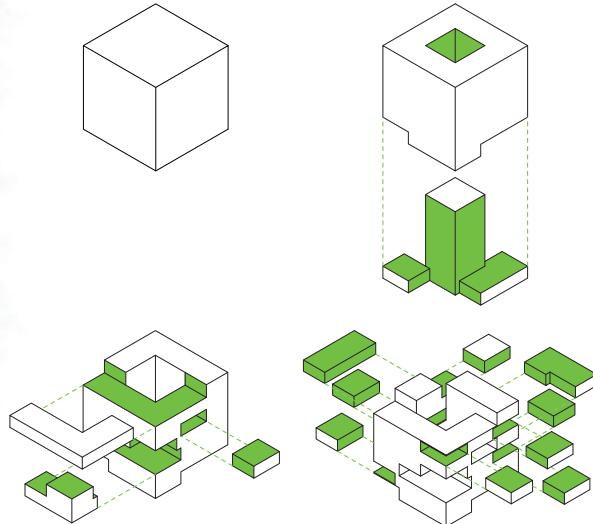




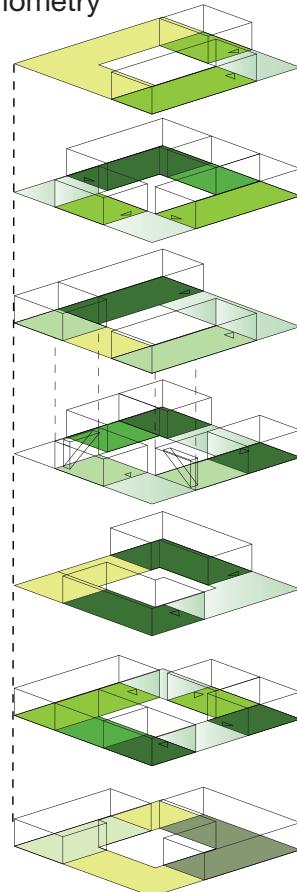
Overall concept

We started off with a volume of 21x21x21m. Subtracting the core created a vertical street connecting the public space (ground floor), shared spaces for inhabitants and private housing along its path. The shared spaces can vary between a playground, herb garden, relaxation space, viewpoint or garden. We favored the mix of a playground and a roof garden located between and above the apartments. With future perspectives of ever densifying cities green spaces are vanishing in favor of new housing projects. Therefore the last step in our process was to guarantee availability of green space for every inhabitant. Every apartment connects to a terrace the size of 1 unit while studios can access the shared roof garden.

A vertical neighbourhood of stacked houses.



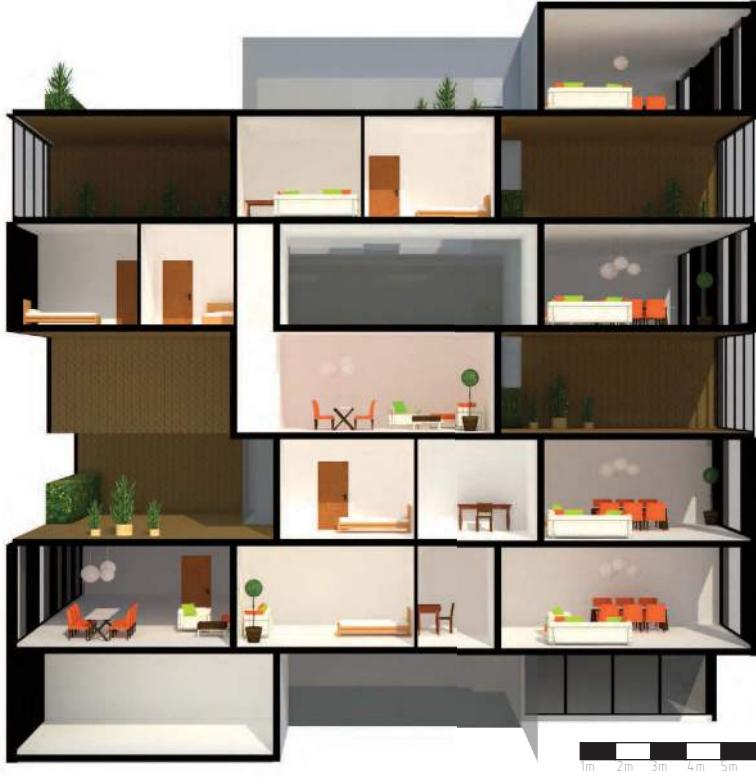
Axonometry

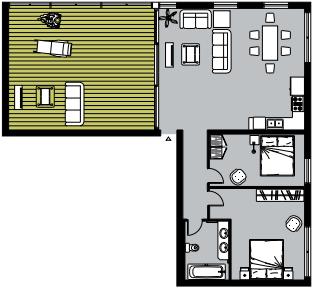
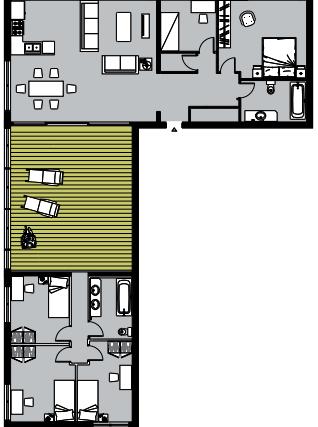
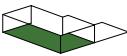
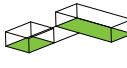


■ SHARED SPACE
■ PUBLIC
■ PRIVATE
■ TERRACE
■ STUDIO
■ 2 BEDROOM
■ 3 BEDROOM
■ DUPLEX

CATEGORIES	Student Single	CATEGORIES	Families with children Student House sharing
Studio 43 smq		Duplex: 70 smq	
	Kitchen/Living room: 23,80 smq Room: 12 smq Bathroom: 3,80 smq		Kitchen/Living room: 37,50 smq Master bedroom: 15 smq Bathroom: 3 smq Room: 12,50 smq

Section

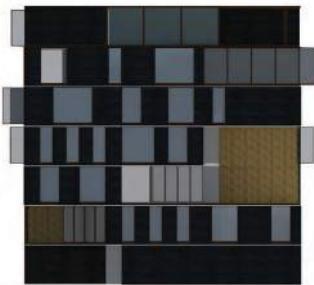


CATEGORIES	Families with grandmother House sharing	Families with 3 children Extend family
	2 Bedroom apartment: 87 smq	3 Bedromm apartment: 140 smq
	 1m 2m 3m 4m 5m	 1m 2m 3m 4m 5m
	 Kitchen/Living room: 43 smq Grandmother room: 12.20 smq Master bedroom: 18 smq Bathroom: 6.30 smq Outdoor space: 43smq	 Kitchen/Living room: 42.85 smq Master bedroom: 16.40 smq Bathroom: 6.40 smq Bathroom: 6.20 smq Room: 9.60 smq Room: 11.70smq Room: 13.70 smq Outdoor space: 43smq

Facades

In line with our design, thinking of a building block for different situations/locations, we choose for a non-load bearing façade. By doing it this way it's compatible with different materials and leaves the possibility to stack the modular units in different ways without affecting the façade construction principles. The design aims to conceal the loadbearing construction by aligning the window frames and using depth in the façade as an illusion.

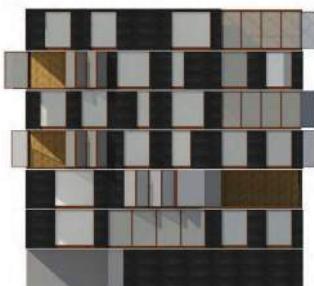
North



East



South



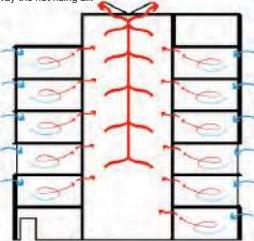
West



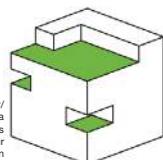
Ecological



The atrium is used to supply the building with natural ventilation. The atrium is unheated or cooled and therefore serves as a chimney to suck away the hot rising air.



The use of natural materials provides an extra quality to apartment living. Natural materials are also well suited for recycling.



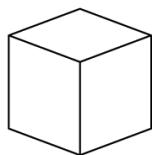
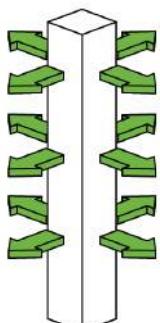
The terraces and the roof serve as indoor/outdoor greenery. This provides an extra quality to the apartments. It also serves as an air filter. Most of the incoming air passes through the terraces and is then filtered by the greenery.



Economical



The volume is kept compact and cubic to create as little façade as possible.



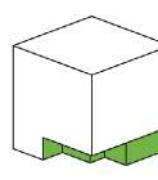
The communication space is located in the middle of the building to maximize the efficiency by allowing up to 8 entrances on the same floor.



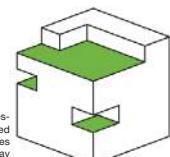
The building is build up systematically with modules. The composition of the modules is dependent on the location, the building is being build. By making it systematic it is repeatable and easier to prefabricate.



Social



The public space allows residents of the neighbourhood to mix with people from outside the neighbourhood. Drawing an even more diverse crowd towards the building.



The shared spaces, which are only accessible by the residents, provide a sheltered place to meet. Because these spaces aren't public it is safe for children to play or to host a small party on the roof.



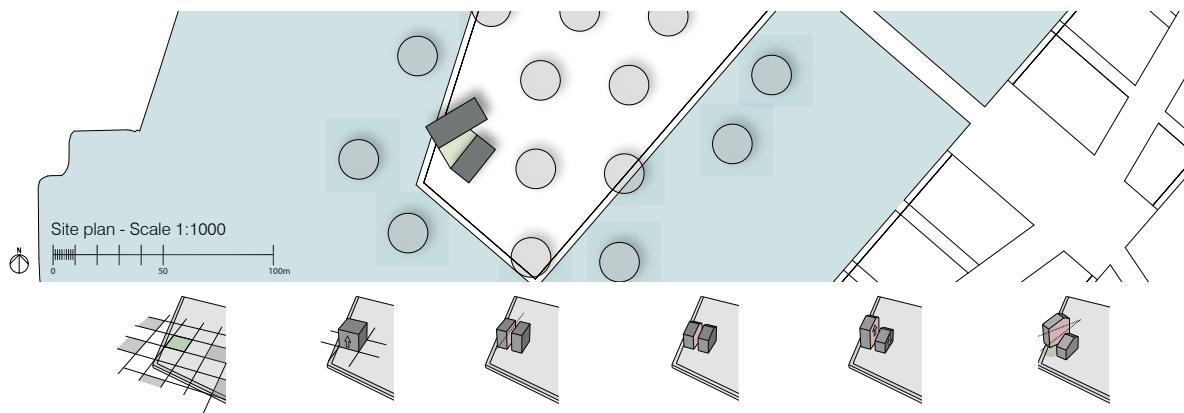
The system used in the structure is the same that is used in the floor plans. Modules can be added to apartments to create the desired floor plan. An apartment consists either of 1 unit, making it a studio or a day and a night unit. With the possibility to add night units and a garden unit.





NEIGHBOURS

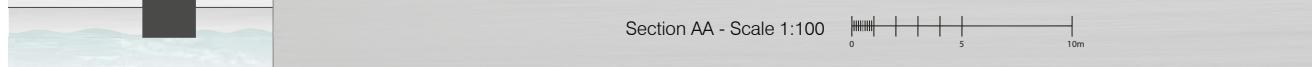
Housing Inventions - MPARC CTH - Spring 2012
Filippa Karlsson - Therese Andersson W - Carolina Lindahl



The tip of Frihamnspiren is today a flat, empty space, lacking human scale and intimacy. The idea is to break down the scale by making two volumes interact. Together they can be perceived as an entity, and at the same time they create an intimate small scale courtyard in between them.

The facades facing the area express a public and strict feeling, with a mixed dark grey brick wall. Towards the courtyard the facades are more tactile and intimate, made out of larch wood.

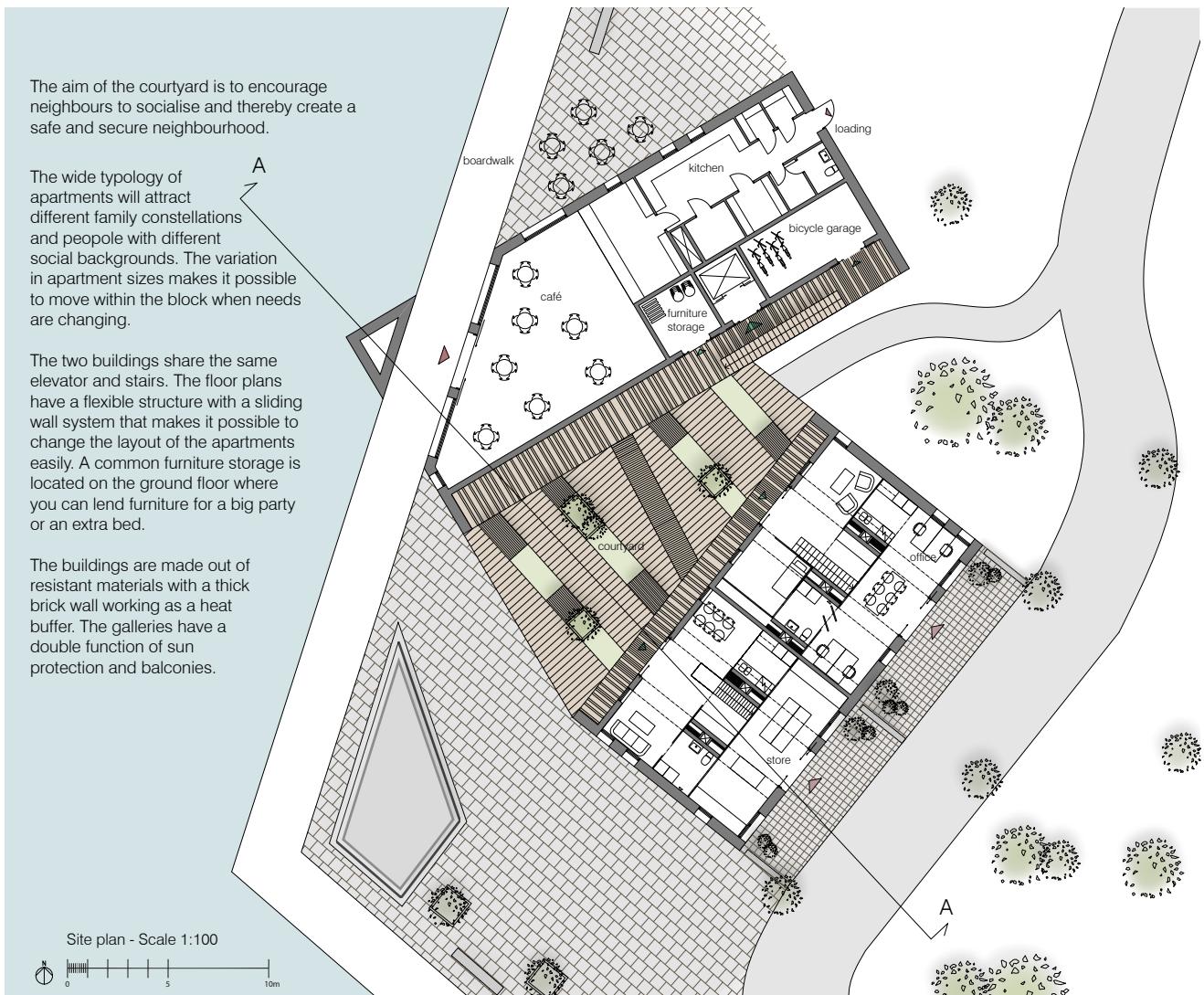
The courtyard and the galleries promote daily meetings between neighbours and a familiar atmosphere.





View towards the courtyard from southwest

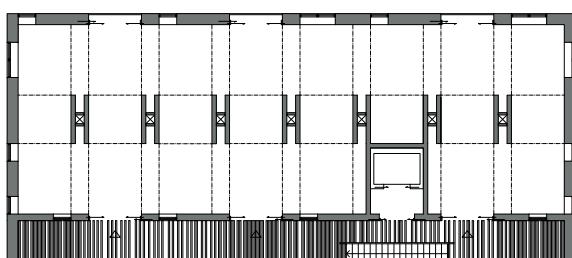
The ground floor has a more public character with a café and combined living and commercial studios. All public entrances are through the brick walls, and the private ones are from the courtyard. This is to keep the courtyard as private as possible and also create city-like facades facing the neighbourhood.





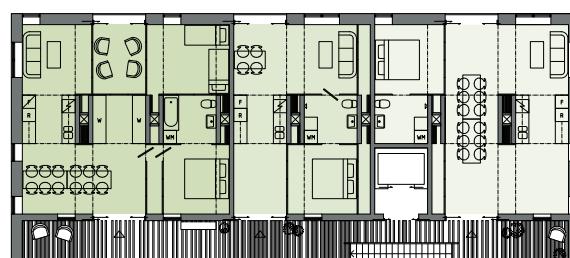
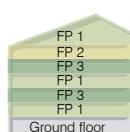
View of courtyard and gallery

The gallery and courtyard is a meeting space for the residents. This can work as an extension of the living space, a place to meet and interact with the neighbours. Every apartment has a good view over what is happening here.

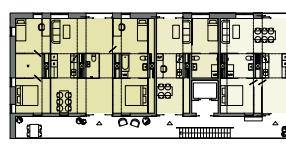


Large building
Floor structure - Scale 1:100

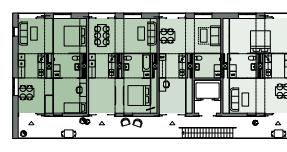
The floor plan consists of a series of modules. Two different modules are created: one room-module with measurements based on accessibility for disabled and one shaft-module containing drainpipes and loadbearing walls. This repetition creates flexibility within the apartments and a possibility to change your apartment layout between floors and over time. The structure of the layout provides double-sided apartments with lots of light and contact with the surrounding. All the apartments have a private entrance which is reached from the gallery and courtyard. The bigger house provides 19 apartments, widely varied in size.



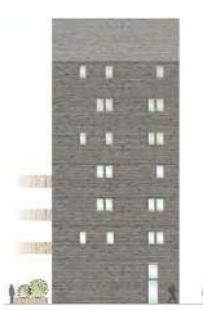
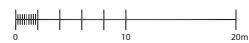
Large building
Typical floor plan 1 - Scale 1:100



Large building
Typical floor plan 2
Scale 1:200



Typical floor plan 3



Elevation North



Elevation East



Elevation South

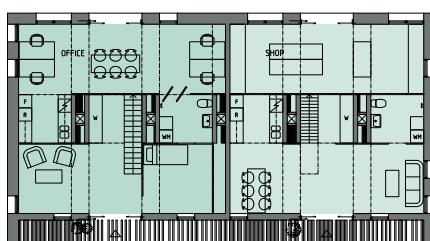


Elevation West - Scale 1:200



Interior view towards the courtyard

All the apartments have an open core; each end of the core is fully glazed and possible to open up against the neighboring area or to the outside. The materials inside the apartment are polished brick and wood, to reflect the exterior and provide a tactile feeling.



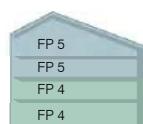
• OFFICE 80 + 80 sqm • SHOP 76 + 76 sqm

Small building
Ground floor - Scale 1:100



Small building
First floor - Scale 1:100

The construction and concept of the smaller house is the same as for the big one. The difference is the combined apartments and studio on the ground floor. All the apartments have two or three floors, and the apartments target larger families or collective living. The house shares staircase with the bigger house and have footbridges over the courtyard reach it. The galleries are less deep on the smaller house, and functions more like balconies. The top floor apartments each have their own roof terrace. The smaller house consists of 4 apartments, minimum 152 square meters.



Alternative furnishing
Ground floor & First floor - Scale 1:200



Elevation North



Elevation East

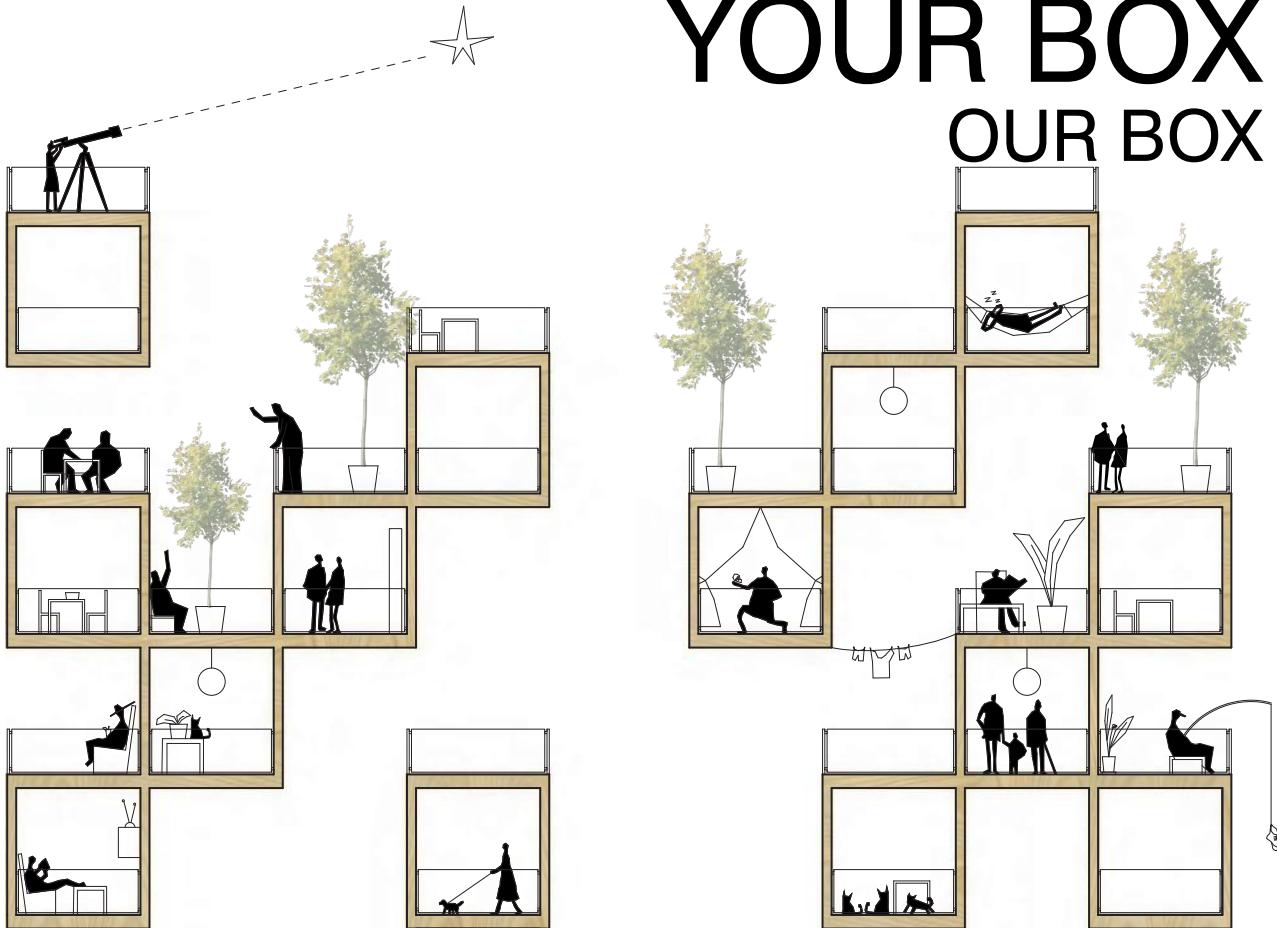


Elevation South



Elevation West - Scale 1:200

MY BOX YOUR BOX OUR BOX



MY BOX.

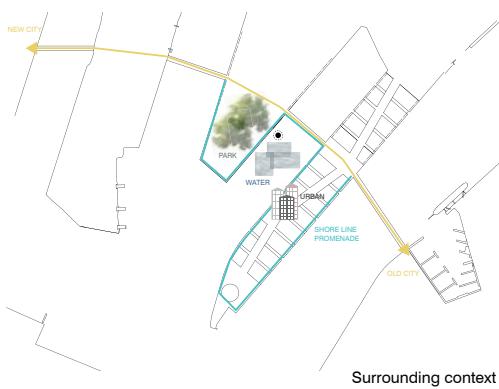
In the city, by the park, on the water a subtle, dynamic and free life is lead. My life. In my box (rather apartment) life is efficient but at the same time filled with variation and impressions. According to mood, I choose how I want to dispose and use my apartment, from calm northern light through the tree tops and mellow western sun on my vestibule to southern bright and open space melting into the seascape. To me, my box is a frame of opportunities, letting me see large in small and offering me diversity in life.

YOUR BOX.

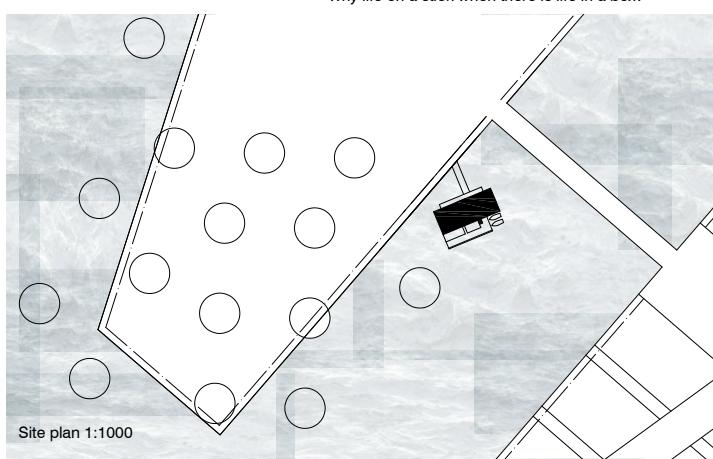
We are neighbors. We are not the same but the frames of our apartments are, even though yours is twice the size of mine. It's fair. And it makes me happy to notice how our different preferences are reflected in the ways we use our similar boxes. Same same but different. On the outside, actually, your box is my box too.

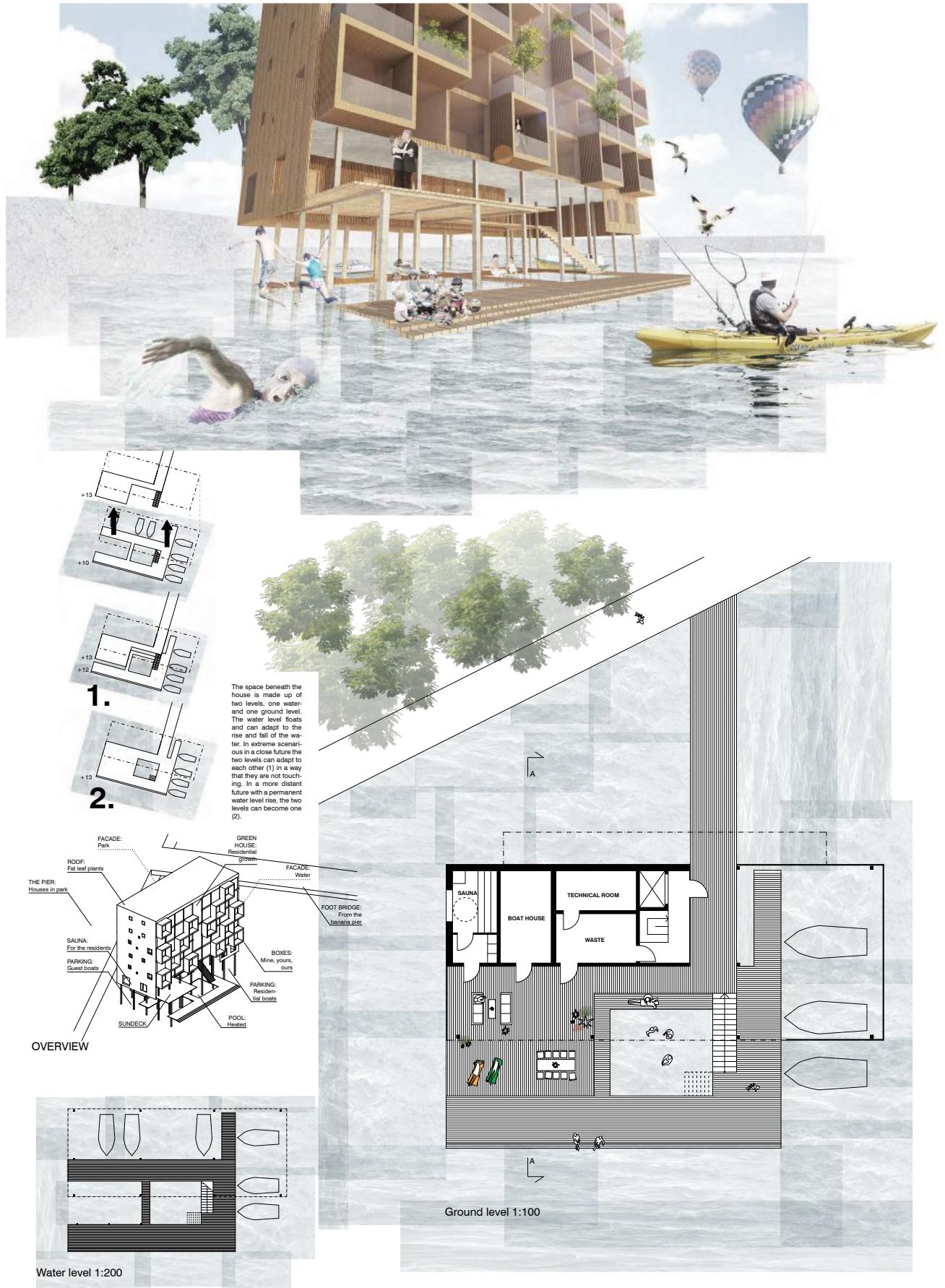
OUR BOX.

Our common box (building) offers both you and me a second shell. Here, we get near Mother Earth and her elements, reminding us of our core. Water, wind, heat, greenery. And other people. The way our common box functions it is gentle not only to you and me but also to our fellow citizens and surroundings, of today and of tomorrow. Sensible materials, energy efficient principles and self-cultivation makes sustainability of the presence, while the generality of the building structure makes sustainability of days to come.



Mathias Söderman & Åsa Hultgren







Acade 1:200

West facade 1:200



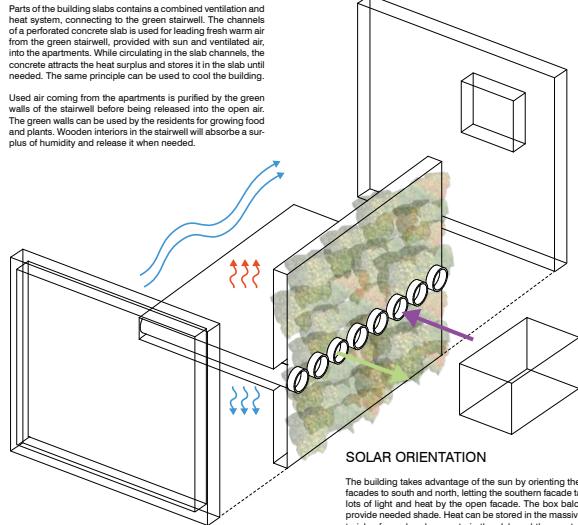
Acade 1:200

East facade 1:200

VENTILATION AND HEAT SYSTEM

Parts of the building slabs contain a combined ventilation and heat system, connecting to the green stairs. The channels of air transport are used to leading fresh air from the green stairwell, provided with sun and ventilated air, into the apartments. While circulating in the slab channels, the concrete attracts the heat surplus and stores it in the slab until needed. The same principle can be used to cool the building.

Used air coming from the apartments is purified by the green walls of the stairwell before being released into the open air. The green walls can be used by the residents for growing food and plants. Wooden interiors in the stairwell will absorb a surplus of humidity and release it when needed.



SOLAR ORIENTATION

The building takes advantage of the sun by orienting the long facades to south and north, letting the southern facade take in lots of light and heat by the open facade. The box balconies provide needed shade. Heat can be stored in the massive materials of wood and concrete in the slab and the apartments' interior. The north facade is more closed. Since all apartments are two-sided, effective self-ventilation is enabled.

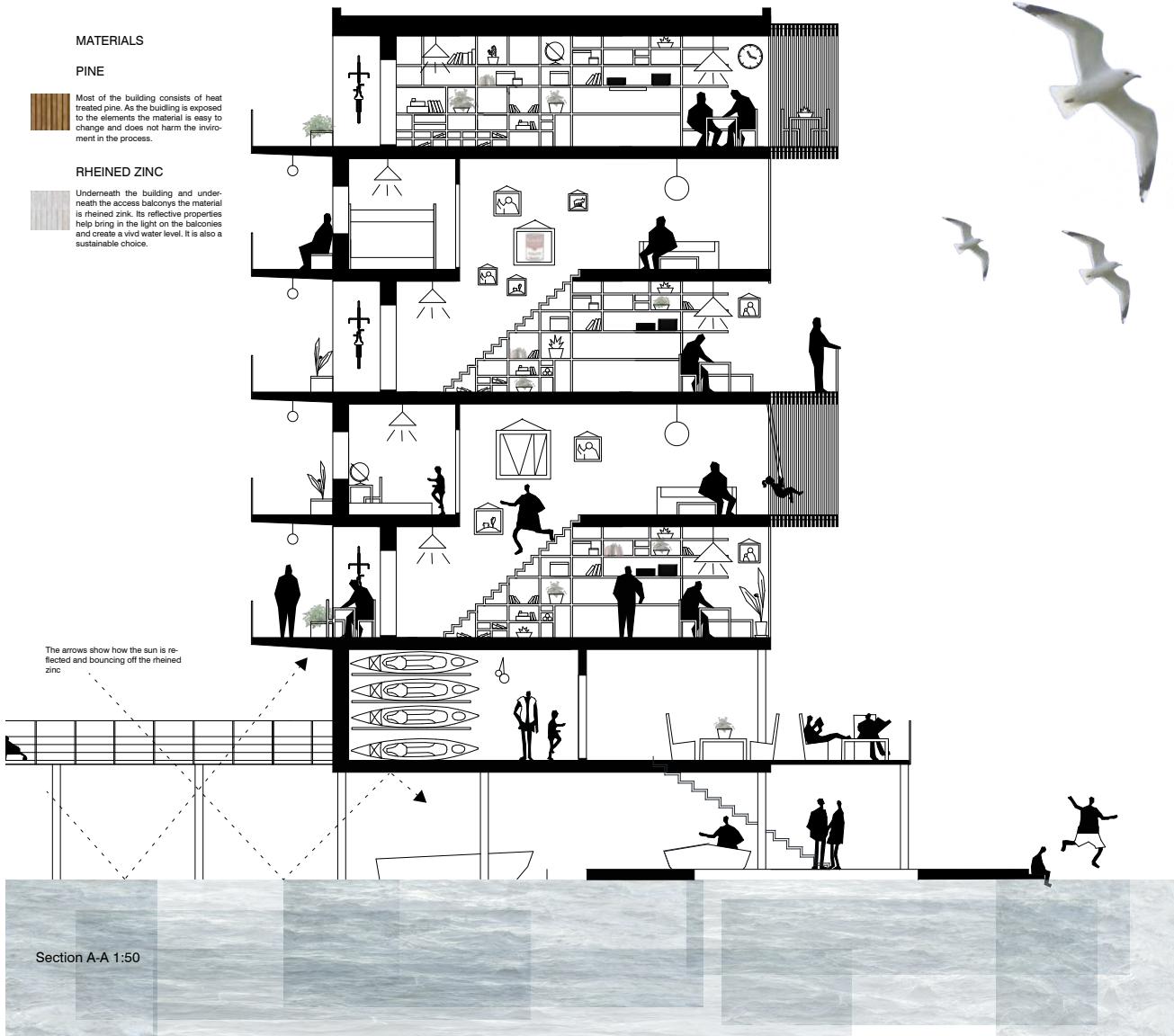
MATERIALS

PINE

Most of the building consists of heat treated pine. As the building is exposed to the elements the material is easy to change and does not harm the environment in the process.

RHEINED ZINC

Underneath the building and underneath the access balconies the material is rheined zinc. Its reflective properties help bring in the light on the balconies and create a vivid water level. It is also a sustainable choice.



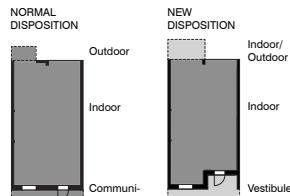


THE APARTMENTS

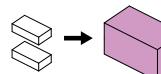
The residences are all stemming from one core module. In its original state it is 57m² but can be configured to span two floors (117m²) or be cut in half to perhaps be a suitable student flat (29m²). The plan has two strong sightlines; this makes it easy for the light to penetrate the relatively long plan and for the occupants to get rid of excess heat.

The balcony box forms a raster which filter through the light. This dissolves the space and when completely opened the space of the living room and the outside border seem to blur.

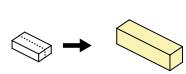
The access balcony is shaped as to form a vestibule, here the residents can take possession of space even before the border of their apartment. Maybe a flower pot or a small chair and table?



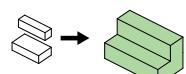
CORE MODULE:
57m²



117m²

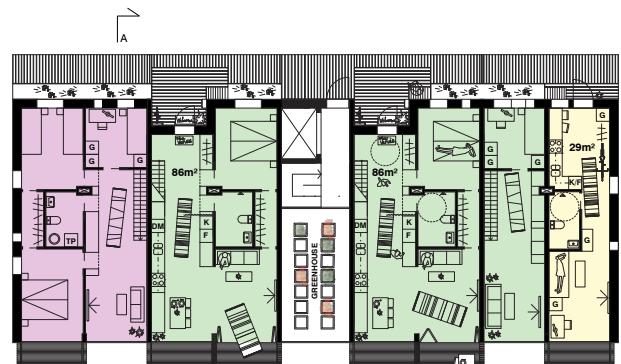


29m²

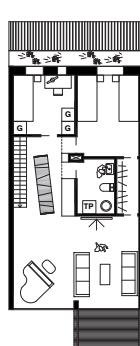


88m²

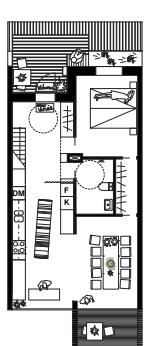
Vertical layout of apartments



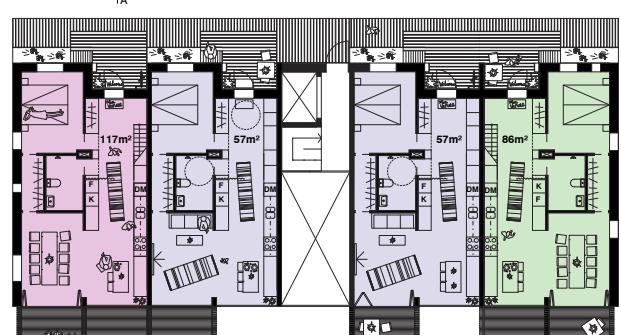
Example floor 1:100



Scenario 1 - two parents, three children



Scenario 2 - two parents, one grandmother



Example floor 1:100



Summer in the city

Concept

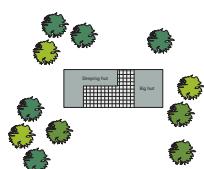


Inspiration from Frihamnen

Strategy



Layout of a summer hut



Layout of our summer hut



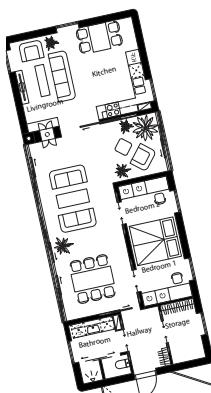
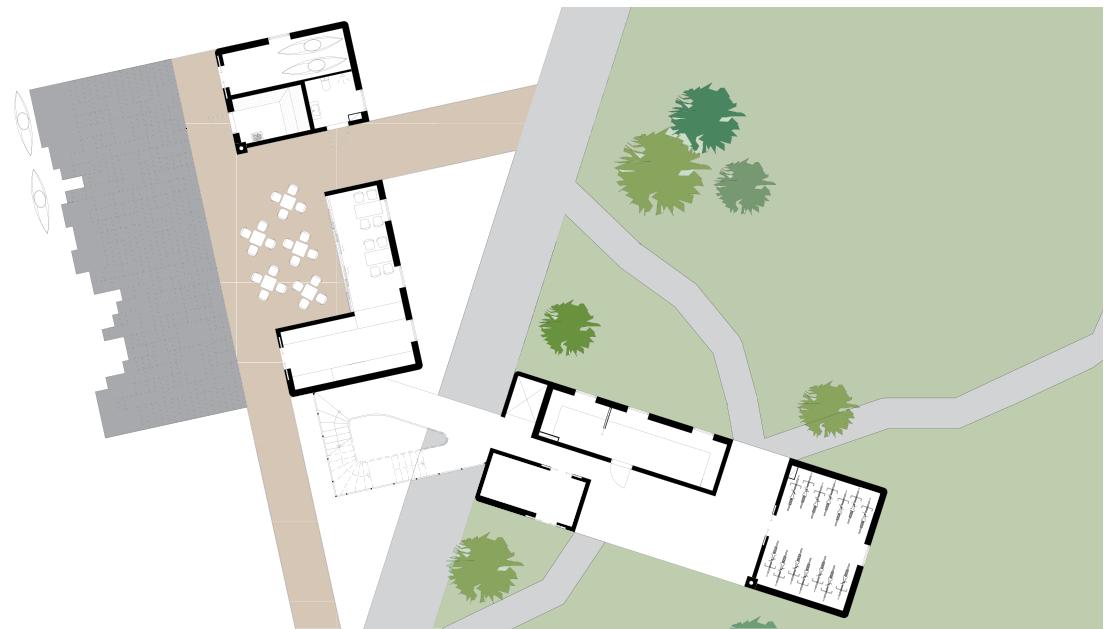
On Hisingen there are a lot of small apartments but a shortage of larger family apartments. In the proposal there are two types of apartments; a six room apartment and a two room apartment. All the apartments are able to divide a masterbedroom in to two rooms or expand there in to the social outdoor area and build an extra bedroom.

The summer cottage has small bedrooms and larger common areas and a lot of outdoor/semi outdoor space. It is important that the private areas are really private. Even the double rooms have two separate entrances where both persons have their own desk and wardrobe part.

The apartments are divided into three zones. The Small Cottage "illstuga" (including, bedrooms, bathrooms entrance and storage), the Large Cottage "Storstuga" (including, indoor living room and kitchen), and The Garden "Tomten" (the outdoor pace around the cottages where you can play, relax or use any way you like).

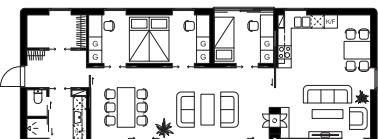
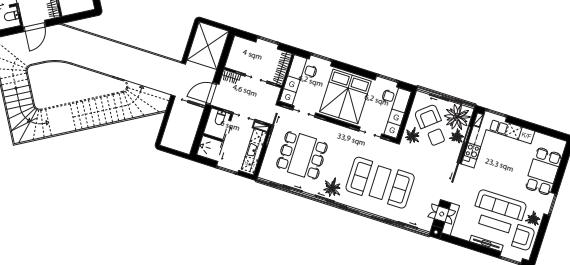
The cottages are heated like a normal apartment while the garden is not heated, but protected by glass walls. The garden can be heated by using the fire place. The garden's temperature can vary over the year from 5 during winter and 30 during summer. The windows are foldable and you can get a real outdoor garden in the middle of your apartment.

Put on an extra shirt instead of turning the temperature like during a hot summer day. It is colder during winter, in the summer house you can feel the seasons of the year.

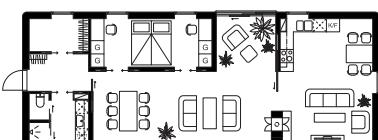


Promotion for excursions and nature adventures in the city! The building has facilities for canoe, sun bathing on the stone deck, a bike pool and workshop for fixing the dining table or building a sauna in the garden (in connection to the fire place for air ventilation).

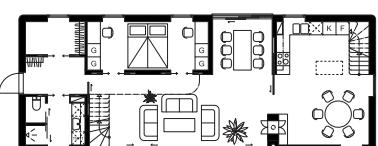
The housing is divided in to two towers connected by the stairwell. One volume is situated in the water and the other on land.



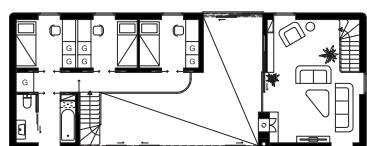
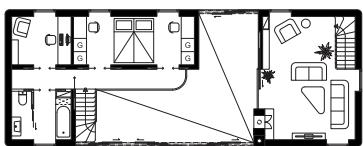
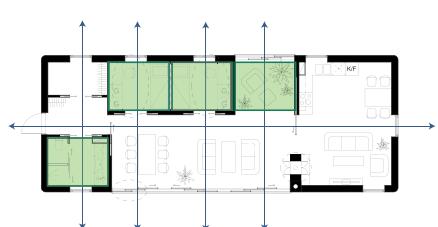
Lägenhet 1, 3-4 rum och kök 57,9 kvm



Lägenhet 3, 2-3 rum och kök 50,9 kvm



Lägenhet 2, 4-5 rum och kök 99,7 kvm





Section

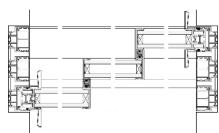
The apartments are built in easy recognizable materials like standard wood, nail and screws. The apartments are easy to adjust and rebuild after needs. The materials are rough and small mistakes made by an amateur can look quaint. Tools can be borrowed in the workshop on the first ground.

By having a acclimatized zoon in the garden the cottages don't need to have thick and very insulated walls. This makes it easier to fix and rebuild by yourself and it gives a thin outdoor/indoor cottage feeling. The cottage facades are standing wood panel. The owner can paint his cottage facades in any color he wants. The floor/ground material in the garden is shale

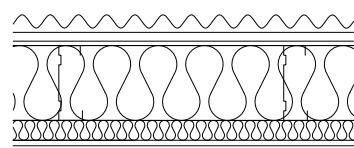




Details



Detail of sliding doors, scale 1:5



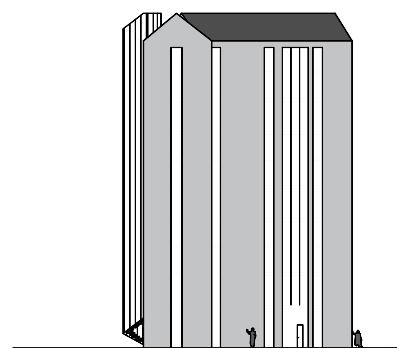
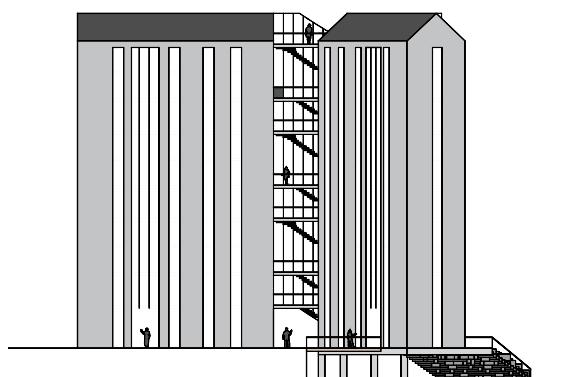
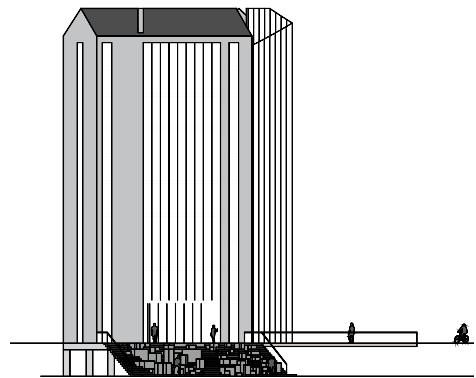
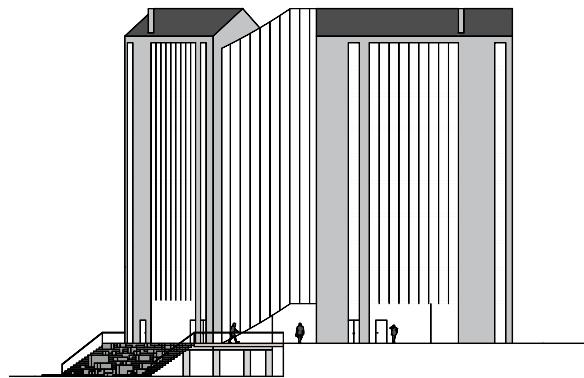
Wall detail, scale 1:5



Detail of fireplace, scale 1:20



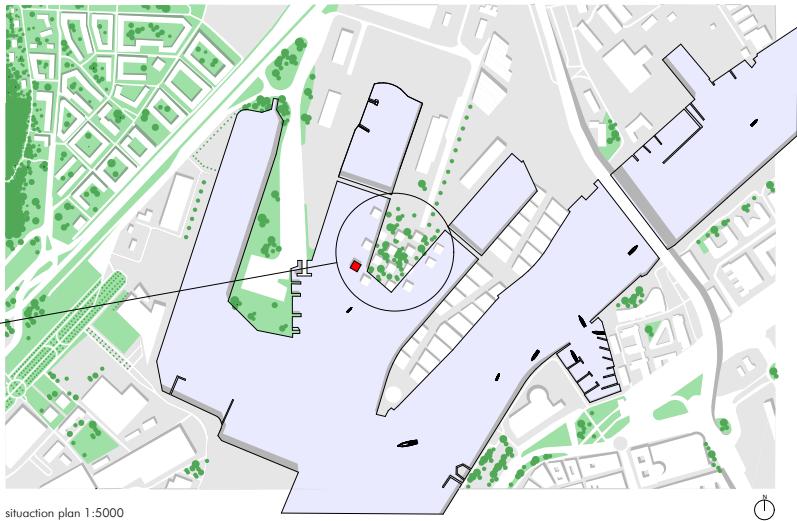
Facades



Scale 1:200

housing development in Frihamnen

The building typology that was chosen for the Frihamnen area is very different from the ordinary quarter building set on a grid of streets. Even having a short glimpse over the map of the centre of Gothenburg it is visible that low tower blocks standing freely in a park are a precedent, which makes the whole district very unique. The part of the site that we were given is on the water, on the forefront of the pier. In our view, to step to the water is a will to separate a little bit from the group, to create a certain distance in purpose of having a better overview of the surrounding- in this case both the city centre in the south and the rocky landscape in the north. In fact, each of the four sides of the building have a very attractive view, maybe just not equally attractive. Another issue connected with a house on water is that the equivalent of a garage in the plinth would be a marina. In a way, this is the strongest reason to buy such an apartment- having a boat and keeping it just as a car is kept.



perspective showing the marina

Our first concept of living in this building was an apartment that is not a box within a bigger box but rather penetrates the whole volume, taking advantage of every side of the building, just as a villa does. The association with a villa stems also from other reasons. Building on a water is definitely a very expensive and technically difficult way of constructing. It would influence the prices of the apartments quite dramatically. So to speak, those would not be targeted at graduates looking for their first flat but rather for the people who have already gained their capital and decide to buy an apartment rather than build their own house. In this way, the aim is to create an alternative for a villa. There are several arguments supporting this alternative. Firstly, it's rather impossible to build a freestanding house closer than perhaps 10km from the centre. Secondly, a villa needs much maintenance, that an apartment doesn't need. In terms of sustainability it introduces a functional and typological diversification in the city centre. It also reduces the amount of transportation from the villa suburbs to the working areas.

Following this way we went deeper in the investigation of what exactly characterizes a villa, and what villa qualities would be relevant in this project.



We started with the issue of living space. In a house it has got its certain, significant meaning. We wanted the apartment to become something more than an assembly of bedrooms. In some cases, where it was necessary, we decided that it's worth to sacrifice some of the bedroom space in favor of having bigger living area.

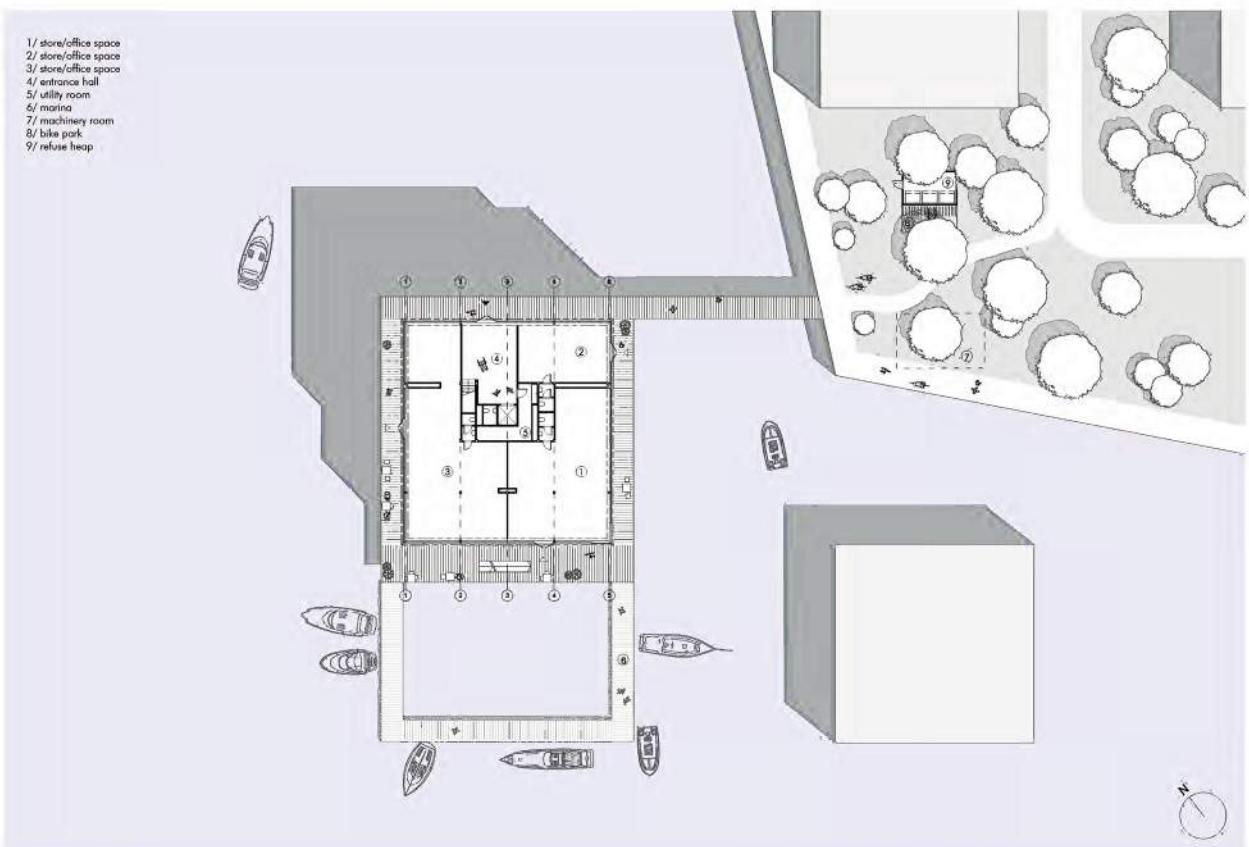
An issue that is closely knit to that is zoning. This modernist approach establishes that the ground floor serves as the main living space and the first floor seem to be more calm and private. In this way having two or more floors significantly increases spatiality of a house.

The questions about privacy spread also outside the apartments. A perfect villa situation is having a private access from the street, which is impossible to achieve for every apartment in a block of more than 3 floors. We resigned from having a shaft in the stairwell through the whole height of the building to avoid an overwhelming feeling of possessing only a cell in a big structure.

What was mentioned before, one of the biggest predominance of a villa is the access to four sides. It creates an opportunity to take advantage of different light qualities in one apartment- having the living room to the south-west, bedrooms to the east and working space or a library to the north.

Another important thing is the outdoor space. It often happens that when a balcony in a flat is too small or even too narrow, it becomes unused or- what is even worse- finds its use as a storage. We tried to give our loggias reasonable sizes and proportions, so that it is possible to put there an ordinary table or a deck chair. They are big enough to hold a function of a small cultivation area, also thanks to their good light conditions. Loggias are always in the corners- the most valuable places- organizing the living area. An important area that encompasses certain outdoor qualities is the roof. It is divided into two parts. One of them is a penthouse with a full terrace, and the second serves as a winter garden and also a terrace for the apartment below.

rendering showing main entrance to the building



groundfloor plan 1:200

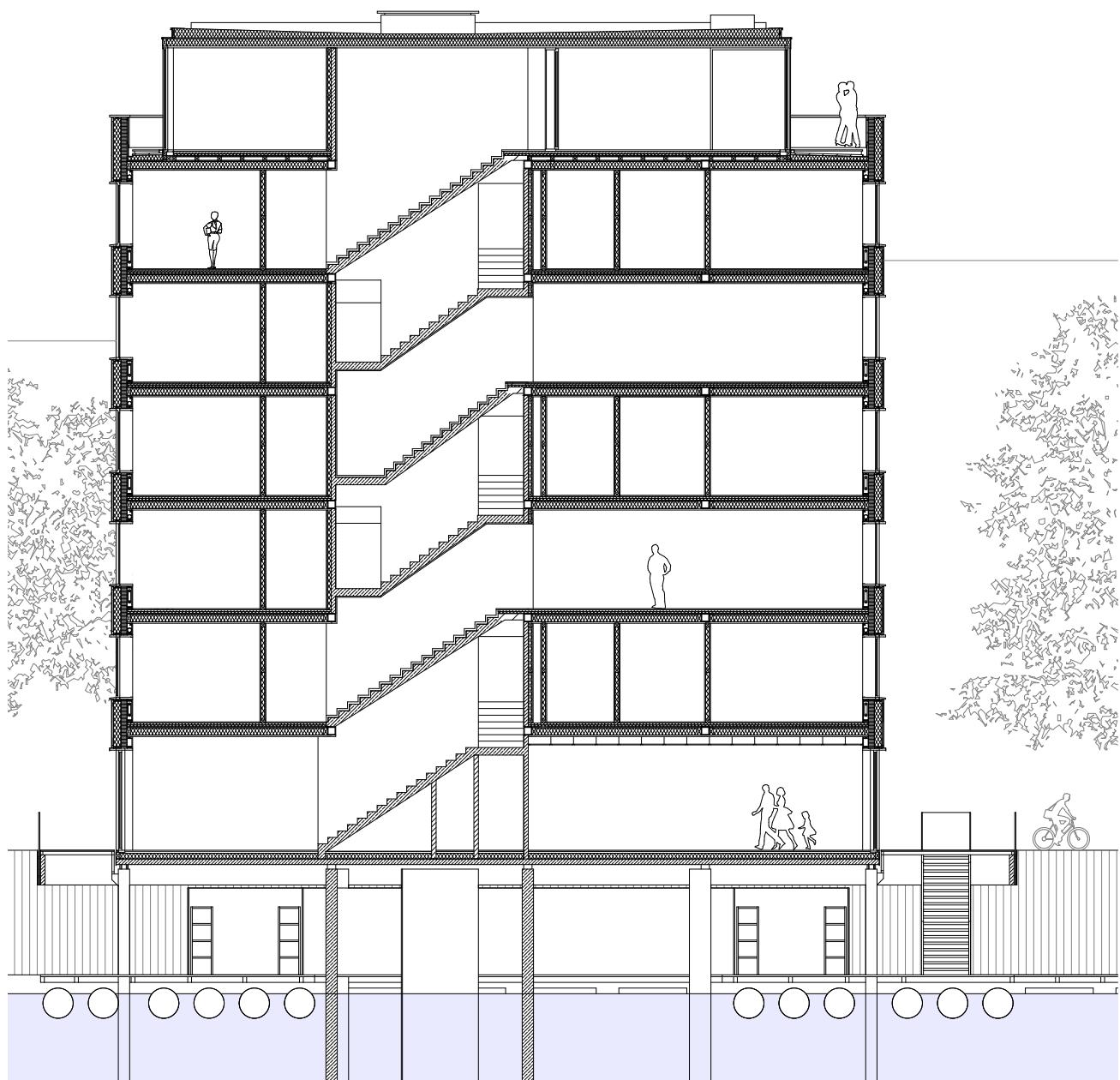
The ground floor of the building encompasses three retail premises and the entrance hall for the housing area. The deck around the whole building provides an access area and can serve as a terrace for the retail premises in the summertime. The stairs put on the southern side lead to the level below, which is the marina on a floating deck. It forms a closed loop in front of the building, being an equivalent of a courtyard. The storage for the marina is put under the building, also forming a ring around the load bearing structure and piping shafts. Apart from the elevator's service area, all of the service devices and the rubbish collection are thrown away to the mainland, to save the valuable space on the water.



The organizational structure bases on a central communication core, where every private staircase fits between two flights of public stairs. This saves some space in case of a solution when a private staircase is in a different place on each floor, at the same time providing much more variety in layouts if there were two separate staircases- one for private stairs and one public. The ground floor hovers 3,8m above the water level, so that the floating deck may be used as a storage, even with the water level rising of 1,5m. In terms of construction, we wanted to avoid using cast concrete and masonry. They are the most popular construction methods, but in this case it would be nearly impossible to tear such a building down without polluting the whole bay. The building stands on 19 steel pillars, 11 in the middle and 8 in the perimeter, holding glulam beams. We decided to use steel as a loadbearing structure, to receive small cross-sectional areas of the pillars. The pillars have got their concrete lagging in the plinth, that is necessary to protect them from the water. The ceilings are made of prefabricated wooden slabs, that are easy to transport and mount on site. Moreover, in this way the loggias don't have to be in the same places on every floor to avoid thermal bridges or difficult detailing. By using external walls as a beams and putting the pillars in the distance of one fourth of the whole wall (beam) length from the corner, we don't have to use any massive supporting structure in the corners, maximizing the view and emphasizing their importance.



scheme showing the double helix communication structure



section 1:50

The image displays a collection of architectural drawings and photographs related to a residential project:

- one storey apartment plan 1:100:** A floor plan for a single couple or child. It includes a living room (37.2 m²), a double bedroom (10.2 m²), a single bedroom (7.2 m²), a bathroom (3.2 m²), a kitchen (5.2 m²), a dining room (3.2 m²), a terrace (3.2 m²), and a balcony (3.2 m²). A photograph shows a modern interior with large glass doors leading to a balcony.
- one storey apartment plan 1:100:** A floor plan for a single couple or child. It includes a living room (37.2 m²), a double bedroom (10.2 m²), a single bedroom (7.2 m²), a bathroom (3.2 m²), a kitchen (5.2 m²), a dining room (3.2 m²), a terrace (3.2 m²), and a balcony (3.2 m²). A photograph shows a modern interior with a sofa and a television.
- one storey apartment plan 1:100:** A floor plan for a family with children. It includes a living room (37.2 m²), a double bedroom (10.2 m²), a single bedroom (7.2 m²), a bathroom (3.2 m²), a kitchen (5.2 m²), a dining room (3.2 m²), a terrace (3.2 m²), and a balcony (3.2 m²). A photograph shows a modern interior with a sofa and a television.
- one storey apartment plan 1:100:** A floor plan for a family with children. It includes a living room (37.2 m²), a double bedroom (10.2 m²), a single bedroom (7.2 m²), a bathroom (3.2 m²), a kitchen (5.2 m²), a dining room (3.2 m²), a terrace (3.2 m²), and a balcony (3.2 m²). A photograph shows a modern interior with a sofa and a television.
- penthouse plan 1:100:** A detailed floor plan for a penthouse. It includes a living room (37.2 m²), a double bedroom (10.2 m²), a single bedroom (7.2 m²), a bathroom (3.2 m²), a kitchen (5.2 m²), a dining room (3.2 m²), a terrace (3.2 m²), and a balcony (3.2 m²). A photograph shows a modern interior with a sofa and a television.
- two storey apartment plan 1:100:** A floor plan for a family with children. It includes a living room (37.2 m²), a double bedroom (10.2 m²), a single bedroom (7.2 m²), a bathroom (3.2 m²), a kitchen (5.2 m²), a dining room (3.2 m²), a terrace (3.2 m²), and a balcony (3.2 m²). A photograph shows a modern interior with a sofa and a television.
- two storey apartment plan 1:100:** A floor plan for a family with children. It includes a living room (37.2 m²), a double bedroom (10.2 m²), a single bedroom (7.2 m²), a bathroom (3.2 m²), a kitchen (5.2 m²), a dining room (3.2 m²), a terrace (3.2 m²), and a balcony (3.2 m²). A photograph shows a modern interior with a sofa and a television.
- north-west elevation 1:200:** An architectural rendering of the building's north-west facade, showing its dark, horizontal cladding and multiple windows.
- north-east elevation 1:200:** An architectural rendering of the building's north-east facade, showing its dark, horizontal cladding and multiple windows.

Studentprojekt. Stanislaw Sosak, Wojciech Purski

The image displays a collection of architectural drawings and photographs related to a residential project:

- Two-storey apartment plan 1:100:** A floor plan for a two-storey apartment. The top section shows the second floor with a living room (10), a kitchen (11), a bathroom (12), and a staircase. The bottom section shows the first floor with a dining room (1), a living room (2), a kitchen (3), a bathroom (4), and a staircase. A legend indicates symbols for parents, children, and pets.
- Two-storey apartment plan 1:100:** Another floor plan for a two-storey apartment, similar in layout to the first one, with specific dimensions: 67 m² + 9,5 m² terraces, total area 86,5 m².
- One-storey apartment plan 1:100:** A floor plan for a one-storey apartment with a living room (1), a kitchen (2), a bathroom (3), a staircase (4), and a terrace (5).
- Photographs:**
 - A photograph of an interior space showing a glass-enclosed dining and kitchen area with a wooden floor and ceiling.
 - A photograph of an interior hallway with warm lighting and wooden walls, leading to a bright room.
- Key values:**
 - four side access
 - sewing public ground floor- private first floor
 - logic of a certain visibility
 - possibility to disconnect the upper level
 - spatiality given by storeys
- Architectural Elevation Drawings:**
 - south-east elevation 1:200:** Shows the building's profile with horizontal bands of windows and a dark facade.
 - south west elevation 1:200:** Shows the building's profile from a different angle, also featuring horizontal bands of windows and a dark facade.

Future visions for healthcare, housing and work 2: Housing inventions
ARK 136 V 12 MPARC
Stanislaw Sosak, Wojciech Purski
tutors: Ola Nylander, Anna Braide Eriksson, Jenny Ström Hansson, Björn Gross
Chalmers Architecture



TOGETHER

Mariana Nordlander, Nathalie Mair, Sandra Ström

COMMUNITY

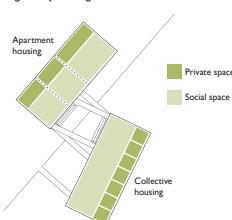
Our main idea is based on the increasing amount of one-person-households that we see today. But in spite of the individual society we are living in people do have a need for social support and a sense of belonging. We have therefore proposed a different way of living with a focus on community and social spaces. In our project you live "together" with your neighbors and share the everyday life in activities such as cultivation, cooking, and laundry.

We believe that a strong community leads to social sustainability and brings a lot of advantages. It creates a safe environment when people know each other and interact. It also creates equality when everyone is involved in the household activities no matter of age or gender.

What this diagram shows is that living in a community is a more environmental friendly alternative: you can share stuff with other people and exchange services and knowledge. Less energy is needed when people for example share a kitchen and laundry machines instead of every individual having their own equipment. As a result this ultimately leads to a more economical and ecological way of living.

We have proposed two buildings, one on land with apartment housing, and one situated on the water with collective housing. Even though they offer different residential situations they are built upon the same principles for creating social spaces. The private spaces are made as compact as possible and they are positioned to face either the park or water. The large social spaces are positioned towards the public path. In the collective housing, the residents share the social spaces together and in the apartment housing, the social spaces are within every apartment.

To contribute to a mix of people within the community we offer different living solutions in various types and sizes.



SHEARING LAYERS

We have worked with the principle of separating the building's different layers. Every layer have different lifespans and can be replaced and repaired without interfering on another layer. This makes the building more flexible and adaptable to future demands.

The different layers we have worked with are SITE (the most eternal layer), STRUCTURE (the load bearing structure of the building), SYSTEM (pipes and installations), SERVICE (the communication with stairs, bridges and elevator), SPACE (which is defined by the rooms) och STUFF (such as furniture and kitchen. The most changeable layer).



SYSTEM
The building system such as sewer, hot and cold water; heating, ventilation and air conditioning are detached from the building structure in order to ease the maintenance and replacement.



SERVICE
The service relates to the function and accessibility of the buildings. They consist of different kinds of communication like elevators, indoor and outdoor stairs and footbridges.



SPACE
The space in the buildings is enclosed by prefabricated 3 x 3 wall and slab elements that can be replaced over time when the function of the space changes. The elements are designed to fit the structure and come in different functions, facades and materials.



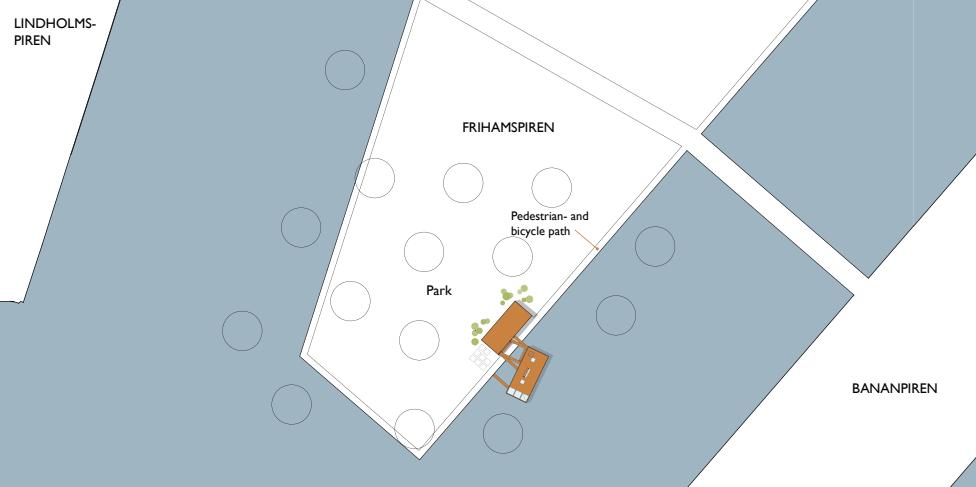
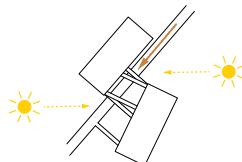
STUFF
Because we want to prevent unnecessary consumption we have worked with the stuff to be more consistent and controlled. Inside the private spaces we have fixed furniture walls with the stuff that is most essential. In a stuffy you can borrow clothing etc so you don't have to buy as much stuff as usually.

SITUATION PLAN 1:1000

The site is located on the east side of Frihamnspiren with a public pedestrian- and bicycle path that runs through it. There are two buildings, one on land and one that is situated on water.

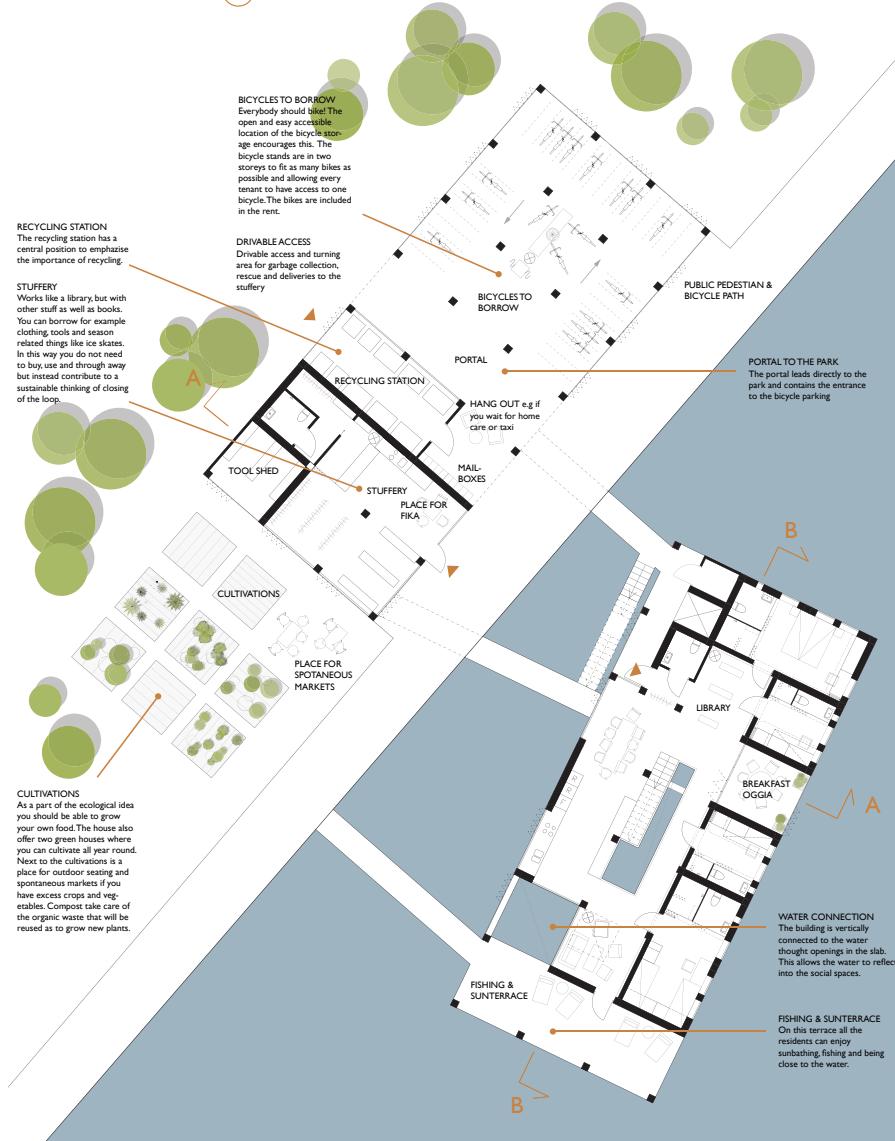
The close connection to public transport, bicycle and pedestrian paths will ease for people to make better choices in terms of transport, both on land and water.

The two buildings are shifted and twisted to open up for the public path that runs through the site. This gives better light conditions to the space inbetween as well as better outlook towards the water and park.



Studentprojekt. Stanislaw Sosak, Wojciech Purski

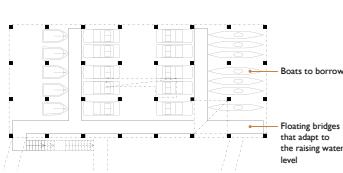
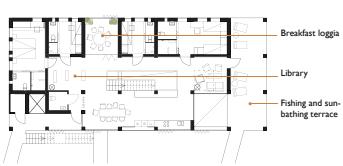
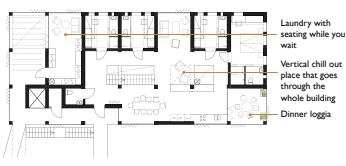
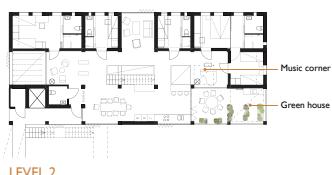
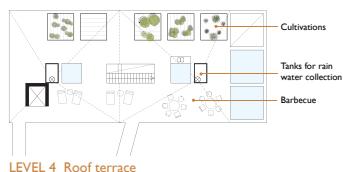
ENTRY LEVEL 1:100



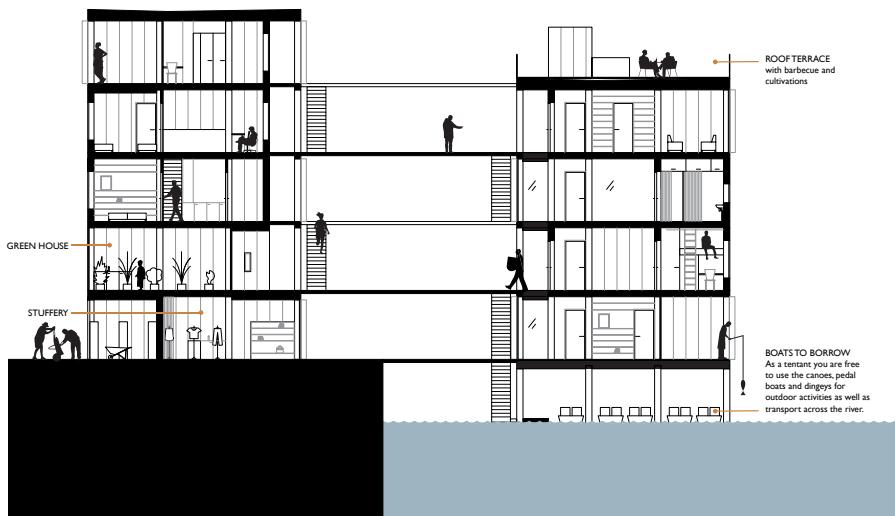
FLOOR PLAN 1:200

Collective housing

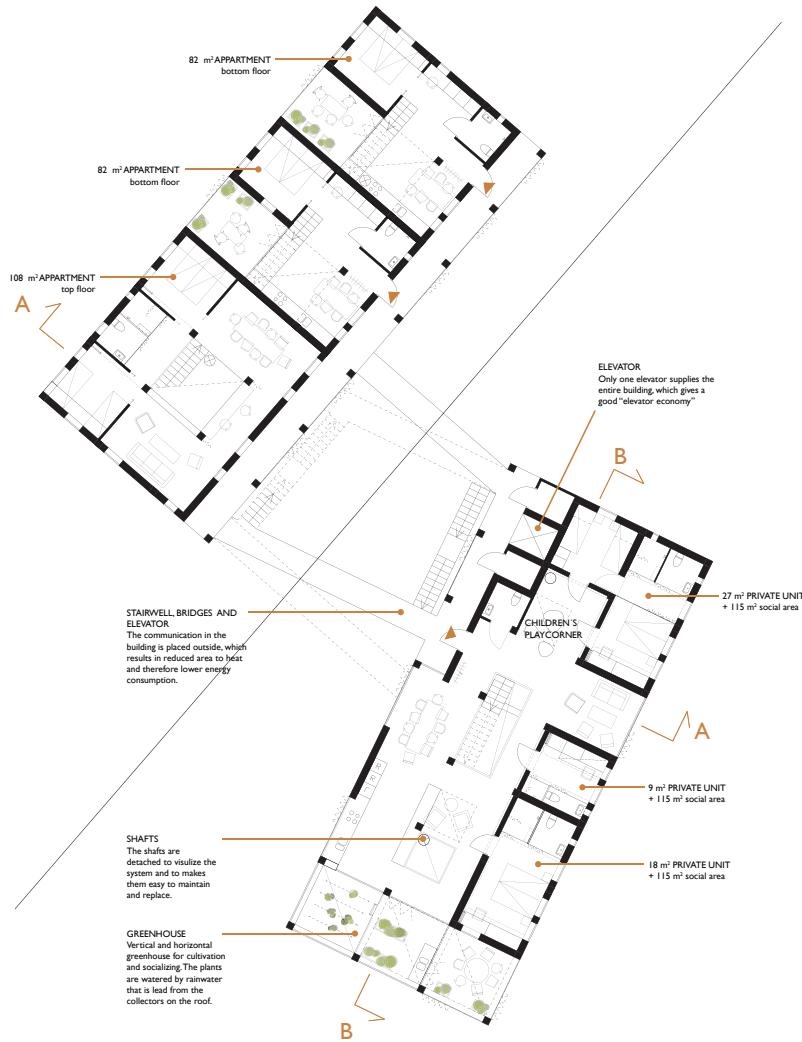
Every floor plan in the collective housing is unique with different social functions. In that way the residents can use the whole building and not only be tied to the floor they are living in. Some functions exist on every plan such as kitchen, dining room, a hallway with place to hang your jacket and shoes and a vertical chill out place in connection to openings in the slab.



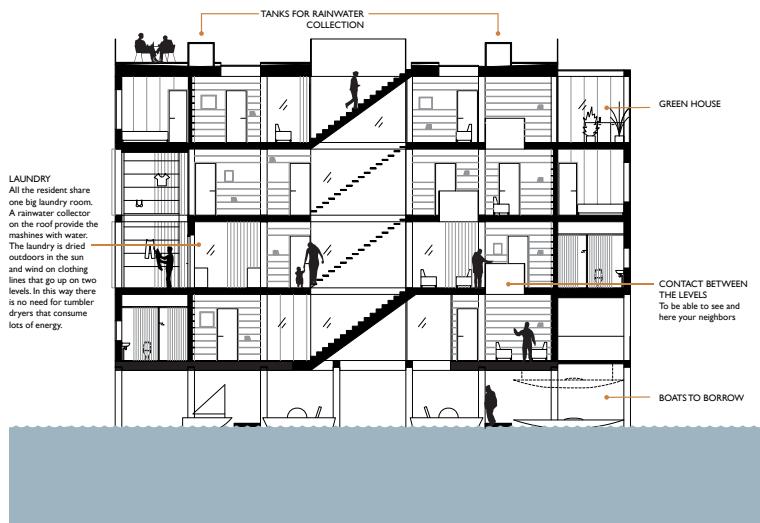
SECTION A-A 1:100



TYPICAL FLOOR PLAN 1:100

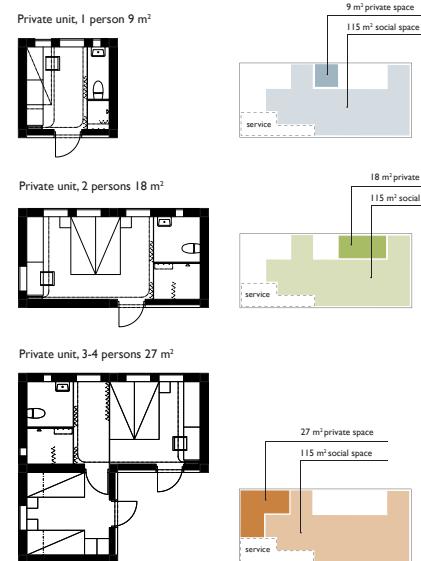


SECTION B-B 1:100



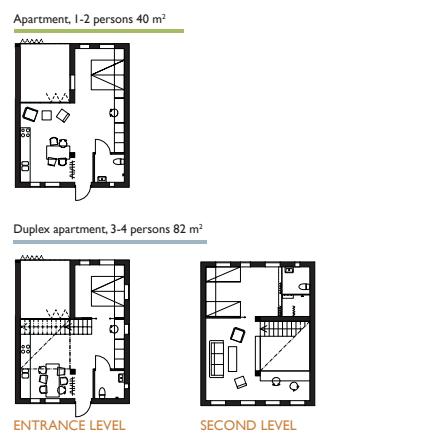
PRIVATE UNITS FLOOR PLAN 1:100
Collective housing

In the collective housing there are three different sizes of private units that are made as compact as possible. They only contain the most essential private stuff such as a bed, toilet, shower and work place. All of these stuff are integrated in fixed furniture walls so that you don't need to bring or buy stuff when moving. The private units should not be seen as an apartment in itself but a part of the residence that also contain a large social space. In total every person has approximately 22 m² living space.

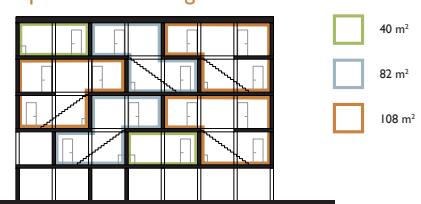


APARTMENTS FLOOR PLAN 1:100
Apartment housing

In the apartment housing there are three different sizes of apartments, which are all based on the same principle. It contains bedrooms, a kitchen and dining and a large loggia that can be opened up and becomes part of the social room. The two bigger apartments are duplexes with holes in the slab that connect the social spaces on the entrance and second level. As in the collective housing the private spaces are situated in the back and the social spaces faces the public path.



SECTION 1:200
Apartment housing





WEST ELEVATION 1:100



ELEMENTS AND MATERIAL

The 3 x 3 m wall units has some different designs and materials. The measurements of each element are always equally divided and correspond to the plywood's standard measurements. This gives a playfulness although it is very rational.

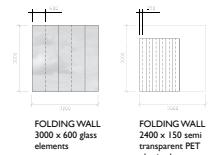
In the facade there are folding walls with plywood elements to protect from sunlight, wind and insight. There are also folding walls in glass to be able to open up the interior and the loggia/green houses. As a division between the most private spaces - the bedroom and the bathroom - we have used folding walls in recyclable semi-transparent PET plastic.

We have integrated shelves in walls - where the residents can put personal things - in the interior where the wall units do not have to be as thick as in the facade.



WALL
3000 x 600 plywood elements with or without windows / doors

FOLDING WALL
3000 x 300 plywood elements



FOLDING WALL
3000 x 600 glass elements

FOLDING WALL
2400 x 150 semi-transparent PET plastic elements



SHELF WALL
integrated book-shelves

FLOOR / CEILING
wooden board

EAST ELEVATION 1:100



INSPIRATION

Folding walls to protect from sunlight and insight.

Generous social spaces in plain wood. The residents could let their own furniture inhabitate the room to make it personal and cosy.

SVARTLAMOEN (student housing)
by Geir Breindeland and Olav Kristoffersen



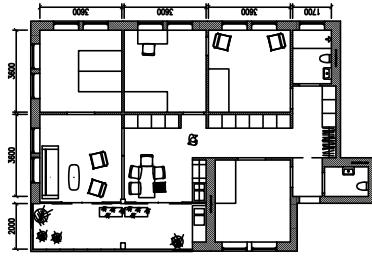
INTERIOR VIEW COLLECTIVE HOUSING



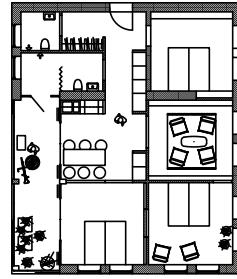
COMPONENTS



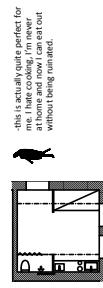
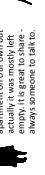
WAYS OF LIVING



CASE STUDY 110 SQM
A family of two parents and three young children.



-of course I feel bad about working so much, with I could spend more time with my son, but it's good to have him age.



This is actually quite perfect for us. We can work from home and now we can eat out without being ruined.

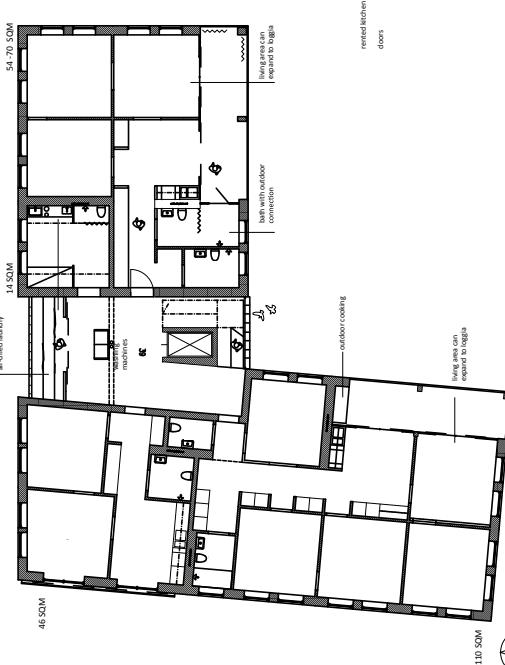
CASE STUDY 70 SQM
A three couples living together with their two sons and a common kitchen and library.

INTERIOR VIEW APARTMENT

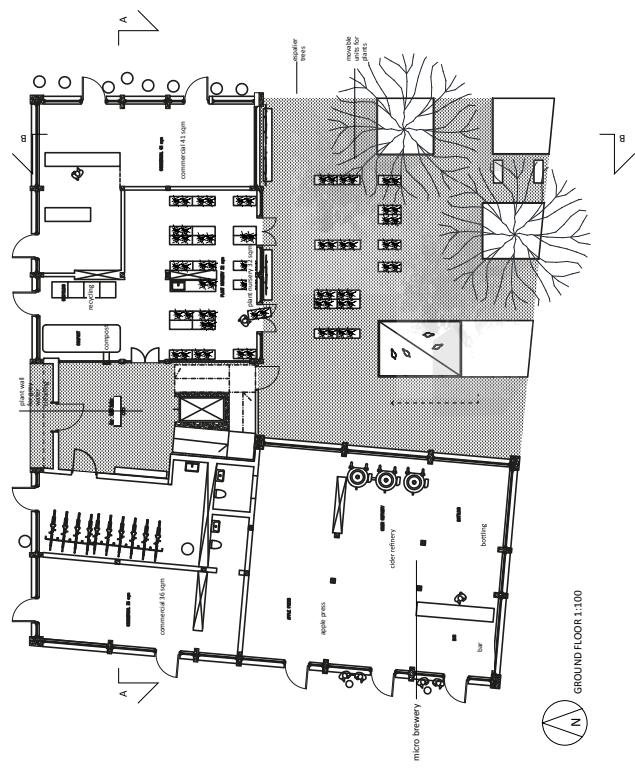


CASE STUDY 14 SQM
For temporary staying, or when you want to give priority to other things in life than living costs. Accessibility by taking away the bathroom wall.

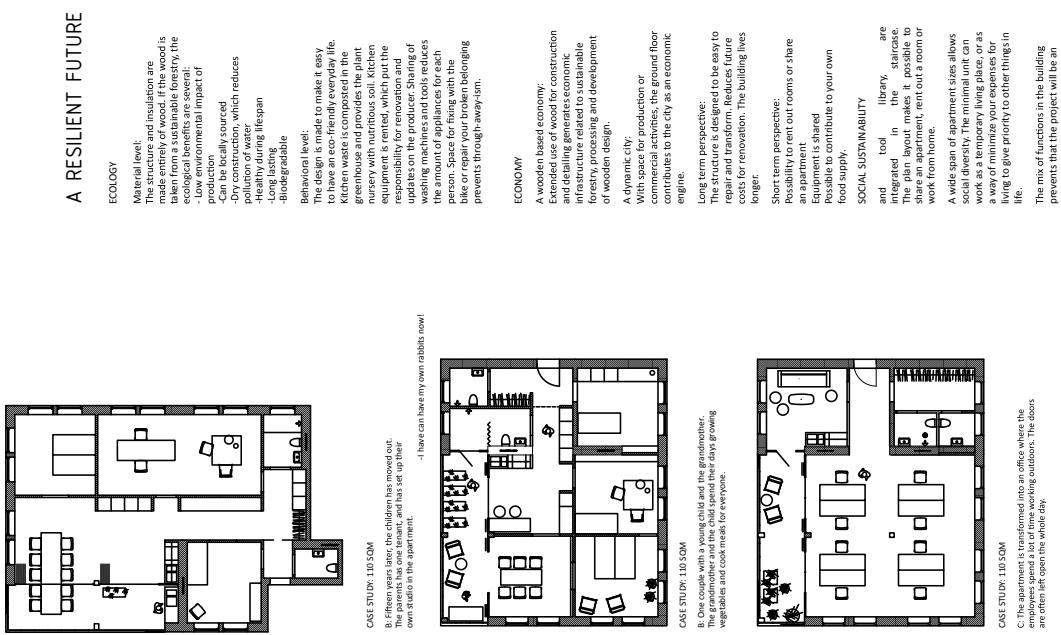
SPACE PLAN

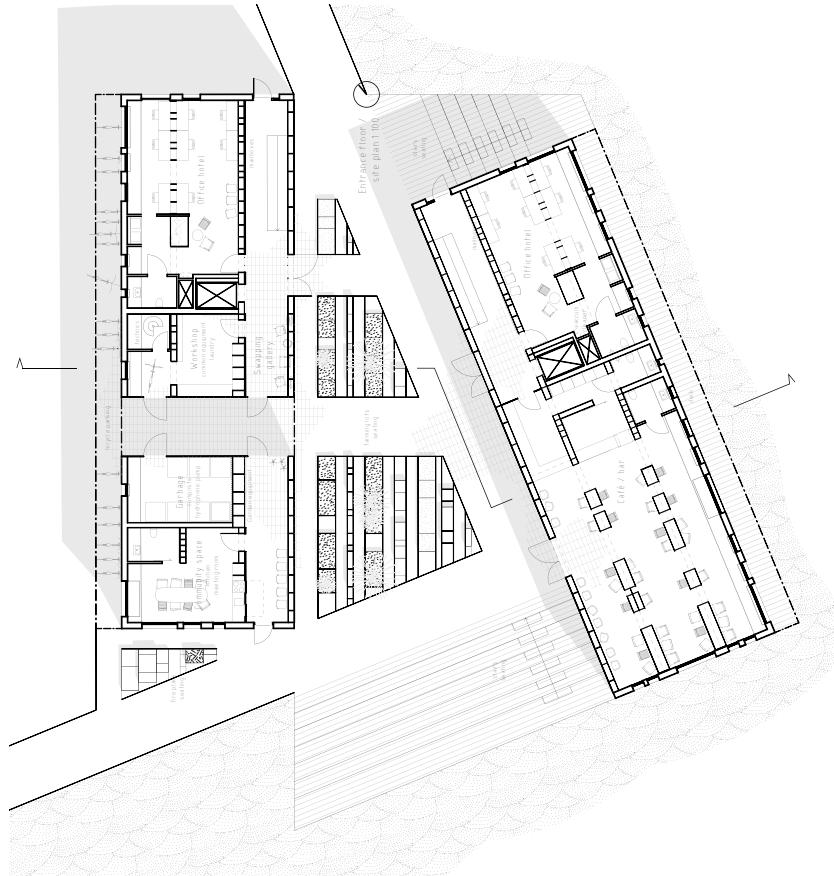
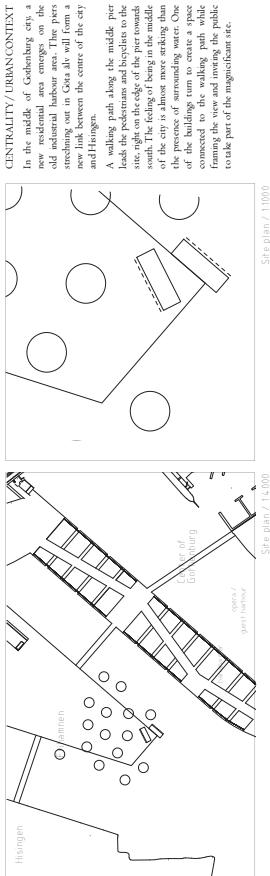


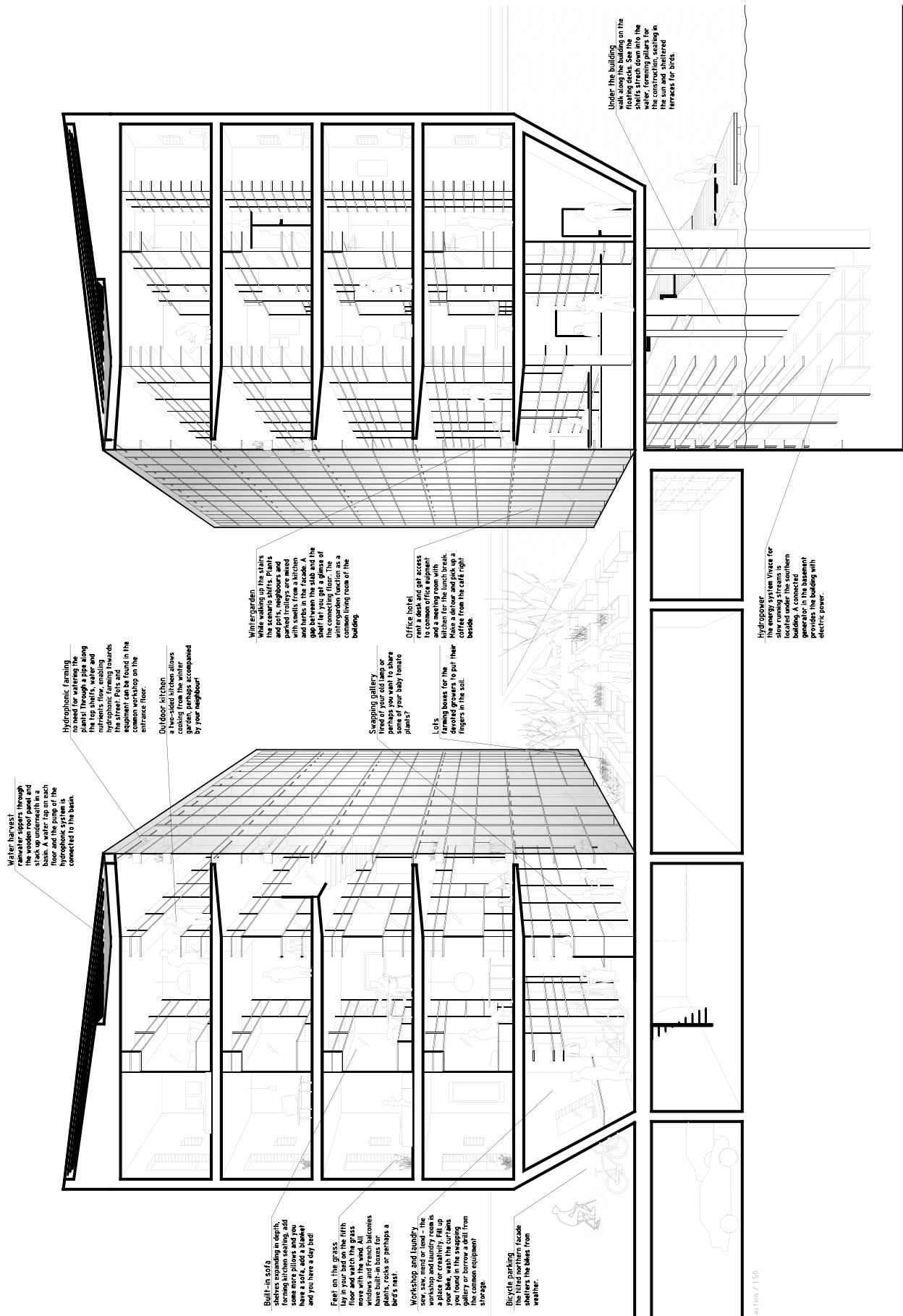
TYPICAL FLOORPLAN 1:100
N

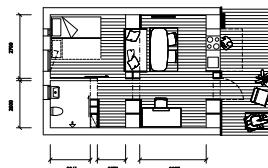


GROUND FLOOR 1:100
N







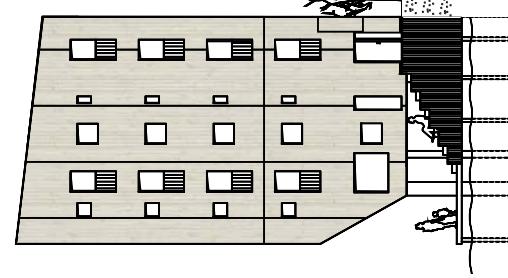
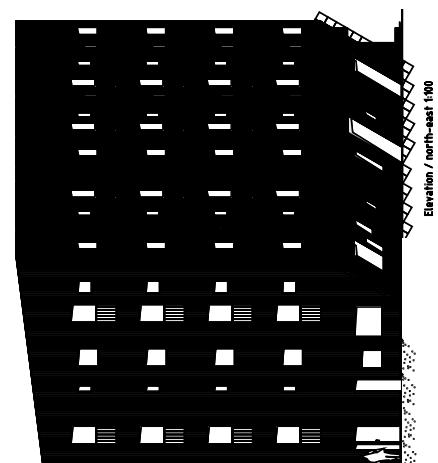
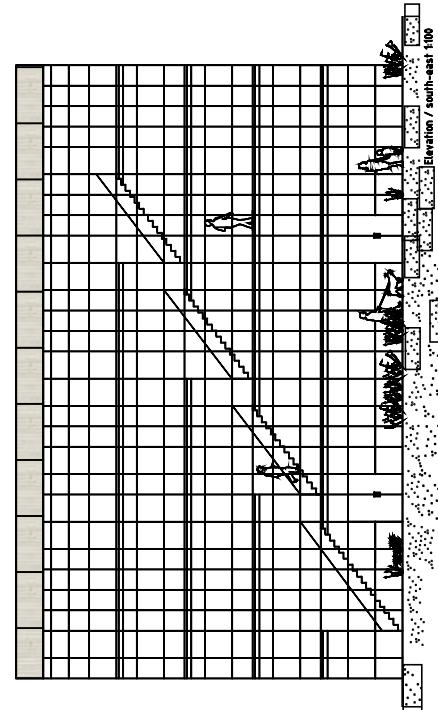


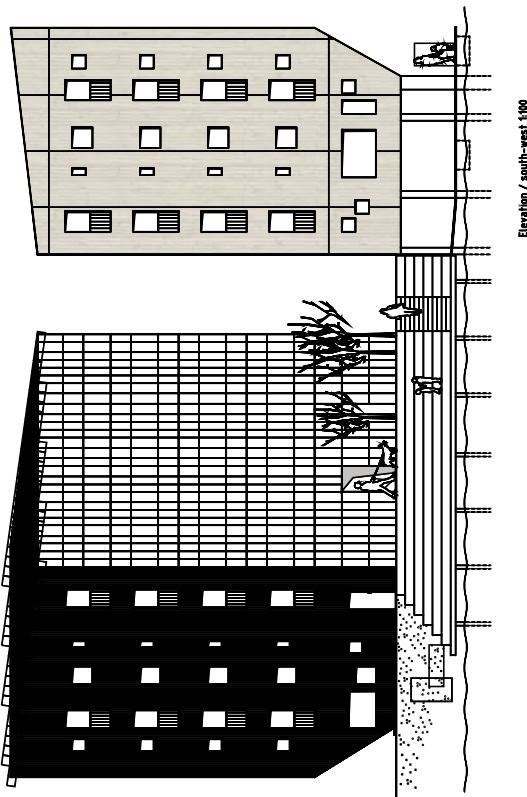
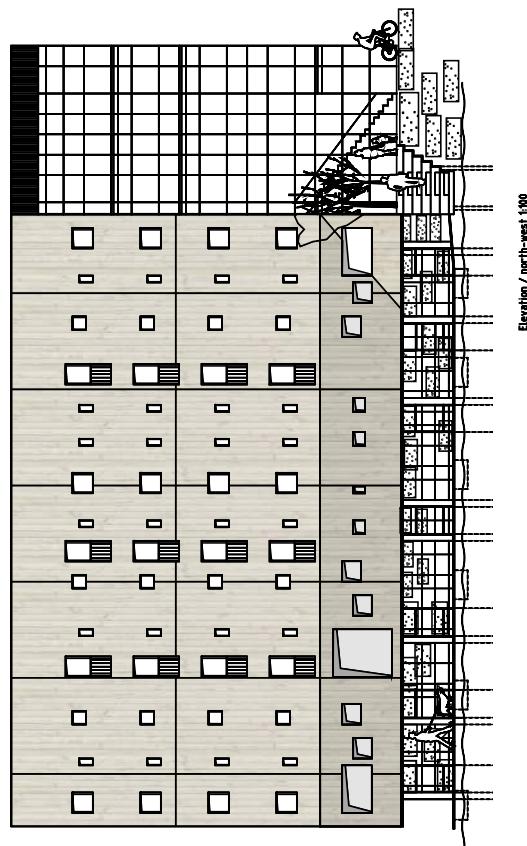
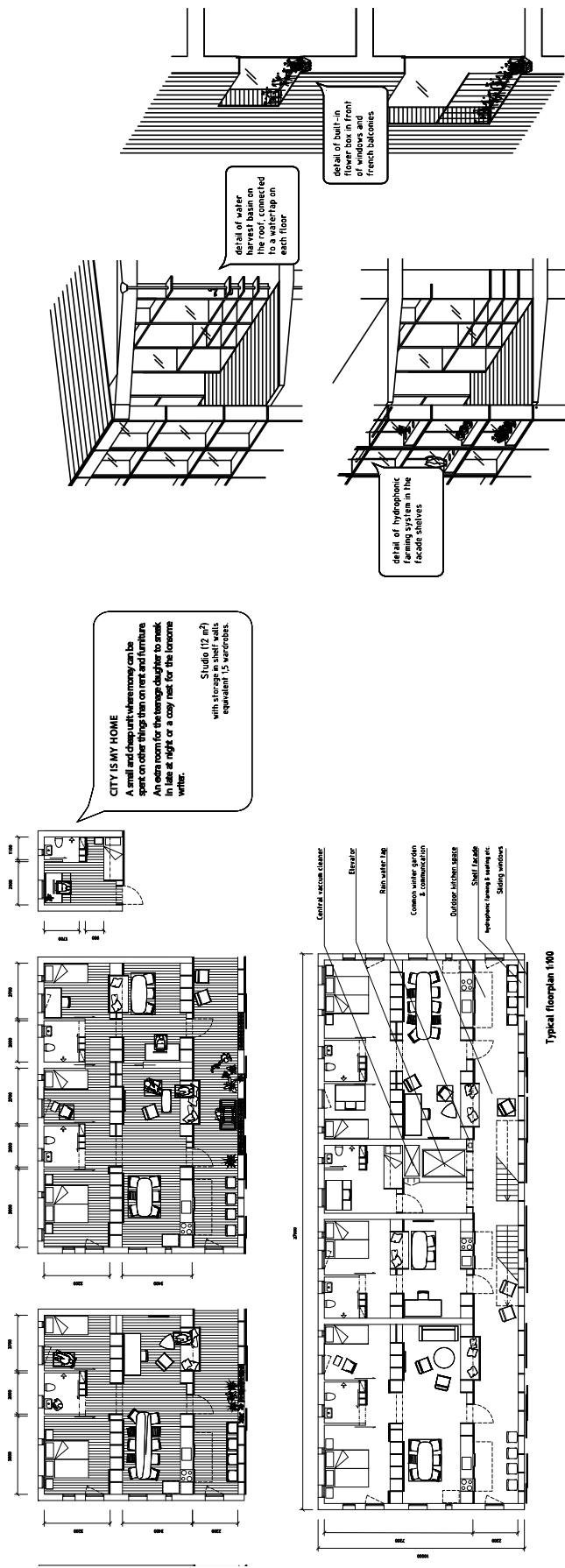
APARTMENT IN A NEIGHBOURHOOD
An own apartment in a common livingpoint
Hang out with your relatives. In the wintergarden
while you cook and drink coffee. Sit in front of the fireplace
and have a book, behind a sofa or one and enjoy the
sunlight and view.

One room apartment (34 m²)
with storage in shelf walls
equivalent 6 1/4 wardrobes.

Three room apartment (62 m²)
with storage in shelf walls
equivalent 15 wardrobes.

Five room apartment (89 m²)
with storage in shelf walls
equivalent 26 wardrobes.





INTRODUCTION

ARK 35 - HOUSING INVENTIONS 07/12
Jenny Ackemar & Therése Radeklev

BACKGROUND

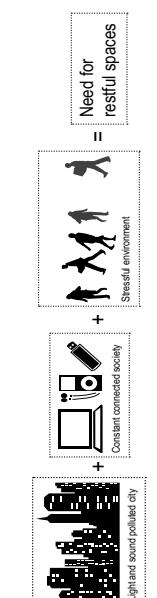
Göteborg is just about to grow over the next a whole new neighborhood will rise up and in the inner city of Göteborg along with Hästens Förarmuseum, which is the central axis between the existing town center core and Backabacken. The Främre area is today a former industrial area and a part of Gothenburg's inner harbour composed of hardened surfaces, large open spaces and storage rooms. 2021 the city of Gothenburg has a 400-year anniversary and Främre will be a new city district and a part of the housing exhibition called FUTURE VISIONS OF LIVING. The Housing exhibition is a show how we residues for the future sustainable city life. The exhibition holds three keywords: Diversity, Recreation and Innovation.

ANALYSIS

COLLEBORG is facing one of its greatest expansion phases in the history of the city and as Fräcka is identified, it will become increasingly important in the spaces and places where the city rises and builds new buildings in its central location in the new city will be surrounded by major roads, port operations and dense settlements. The open landscape as the river creates makes the visual contact with the surrounding city continuously apparent, and the sound has an open space to travel.

LIGHT AND SOUND POLLUTION A growing and increasingly dense city means a city that never turns off the lights, a constant ringing and sounds that never ceases. In simple sense the light pollution steals away the darkness, bling away from us, all the wonder of the night sky. Not only exterior but also interior.

CONCEPT

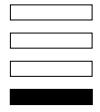


PAUASHAUS



AREA

BOA ONFAEHE DÖR: 298 sm²
ELEVATOR STAIRS: 264 sm²
PUBLIC FUNCTIONS: 180 sm²
WORKING SPACES: 123 sm²
POSSIBLE AMOUNT OF APARTMENTS: 20



paushaus



DESIGN, CHARACTER AND MATERIALS

The three cohesive volume provides a sculptural effect that is enhanced with the curved lines and the facades are covered with a graphic pattern. In order to break down the scale the facade has been given a graphic pattern.

The facade consists of then zinc wire different buildings and directions which the sun reflect differently. The link bridges between the buildings are suspended by steel columns and is covered with glass. The recessed balconies are covered with a wood a warm shade that contrasts with the gray buildings. The bridges is made in a wood that may have a shade of gray with age.

The construction is preferably in steel to facilitate the construction on water and an optionality of the building in the future. Other materials are maintenance-free through the anodized plates, galvanized sheet metal and heat-treated wood.

Material choices are made based on a life cycle assessment of energy efficient construction and material that is maintenance-free, given the wind-exposed location.

ADAPTIVE AND DYNAMIC FAÇADE WITH SOLAR PANELS

The idea is that the building should work in union with the natural elements in the environment, in this case with the sun. The facade is an example of adaptive technology with automatic sensors that makes the solar panels position themselves below the sun throughout the day. This allows the solar panels to always be at its optimum regardless of time, day or season and provide the inhabitants with energy.

CONCEPT FAÇADE WITH SOLARPANELS

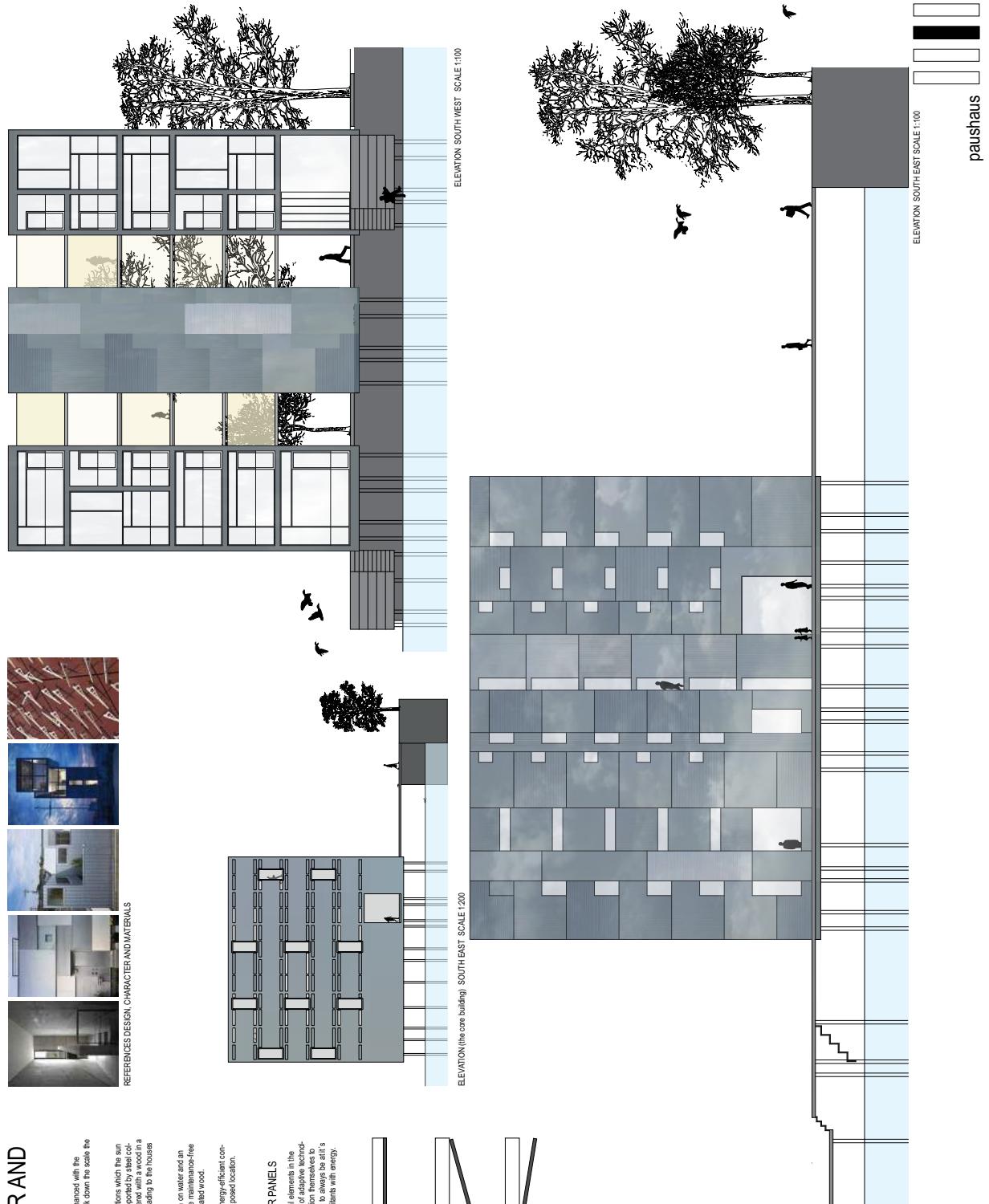
Facades at night - the solarpanels are drawn into the facade.

Facades at morning - the solarpanels are faced towards east.

Facades at noon - the solarpanels are faced towards west.



REFERENCES DESIGN, CHARACTER AND MATERIALS



TYPLOGIES

This project is investigating how to lead the effects of light and sound pollution. How to arrange spaces so that people who value the idea of a good night sleep and who needs to remind them selves of the importance of unwinding and pausing a bit from the ever so stressed society.

To control the positive and negative effects of light and sound the building is divided into blocks with different functions and character.

Middle Block:

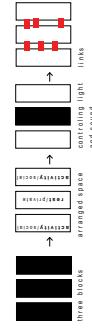
Since a middle block needs to behave in a different way in spaces with less light and noise. No space for rest and privacy is concentrated in the middle block, enclosed by the two outer more social blocks. To accomplish the block, as much as possible there are no shafts or elevators or plumbing. To avoid disturbance that you would normally suffer from in an ordinary building. The intake of daylight and views are minimal with only light slots close to the floor and the ceiling.

Outer blocks:

The outer blocks has a less introvert character with generous intake of day light and views. Open solutions in the floors plan ridge social activities.

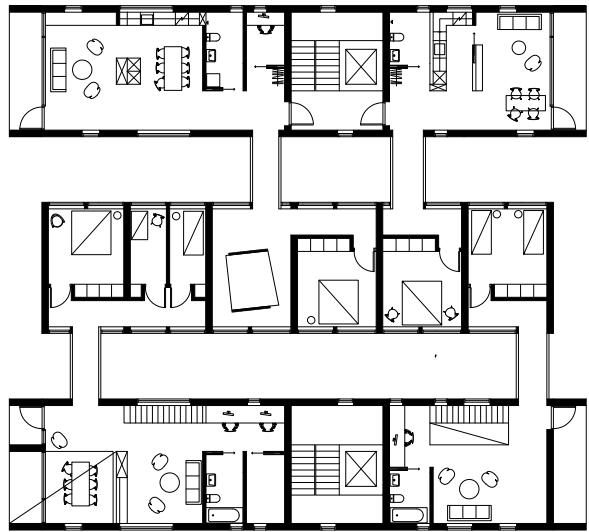
Lights:

To emphasize the different activities of the blocks a symbolic wall through a glassed bridge, works as a reminder what to enter and what to leave behind. A line to look at the sky above and the water below.

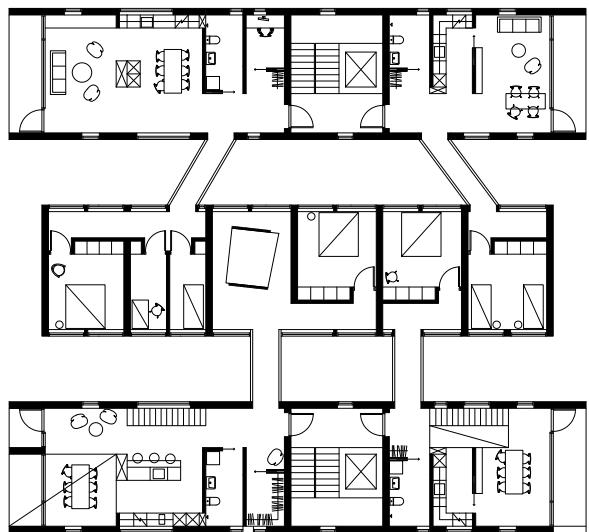


FLEXIBILITY

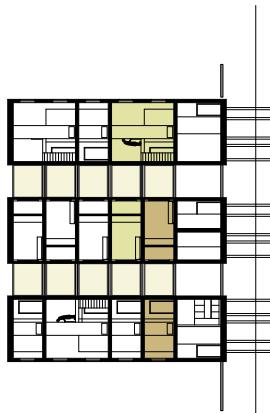
The flexibility in the building consists of a structure in the middle building that makes it easy to add or remove bedrooms if needed. It is also possible to rent out one or more bedrooms since the glass boudoirs between the houses are often located in direct connection to the main entrance and a bathroom.



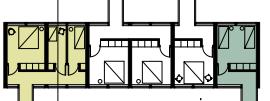
FLOOR PLAN 1 SCALE 1:100



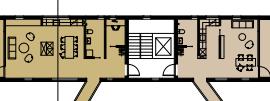
FLOOR PLAN 2 SCALE 1:100



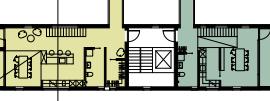
SECTION SCALE 1:200



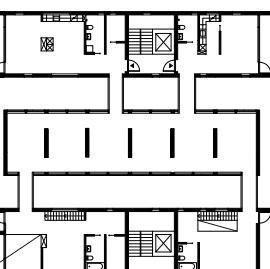
APARTMENT 3 96 SQM



APARTMENT 1 186 SQM



APARTMENT 2 116 SQM



GENERAL STRUCTURE IN THE MIDDLE BLOCK



Dining area with open fire



View through kitchen



View towards glass bridge



INDOORGARDENING

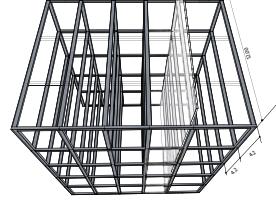
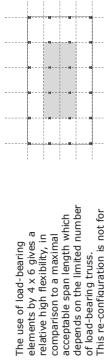


GATHERING TOGETHER FOR
DIFFERENT OCCASIONS

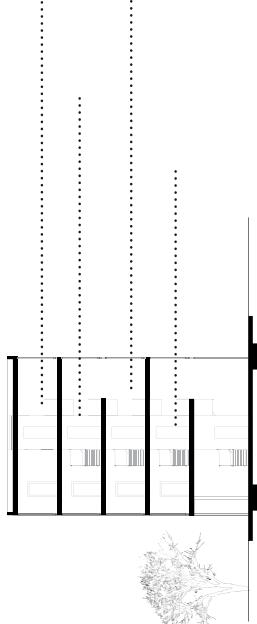


SAFE SPACE FOR CHILDREN
LEISURE TIME / WORKING

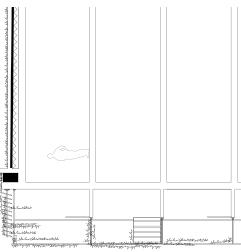
SCAFFOLDING / STRUCTURE



low-tech construction
provides with personal
space gives a personal touch to
the building facade
climber plants



INDIVIDUAL FAÇADE



The original idea was to have a second skin on the facade, but why don't we use it as a sustainable green vertical garden? The planted rod provides shading and insulation for the building. Furthermore the idea includes the growing climbing plants from the top of the attic and a possibility from the ground floor. The frost-resistant plants give the building a all-year-around green facade, a protection from the wind and sun. They can be cut individually, which gives a personal touch to the apartments.



FRIHAMMEN #6

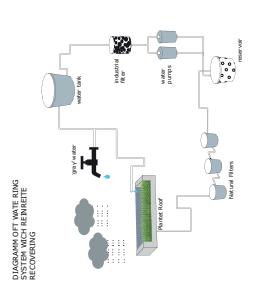
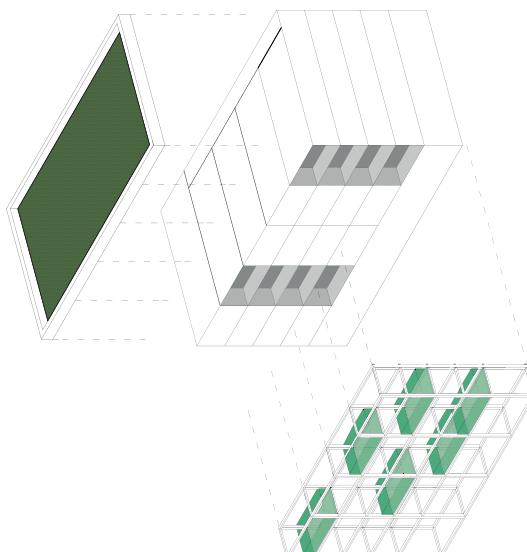
Transitions – this is between is outside
Frihamnen is a former industrial area which lost the function and remained for a long time as a big empty space. Frihamnen is closer to the central part of Gothenburg, the good providing by the infrastructure give this place a lot of good living qualities.

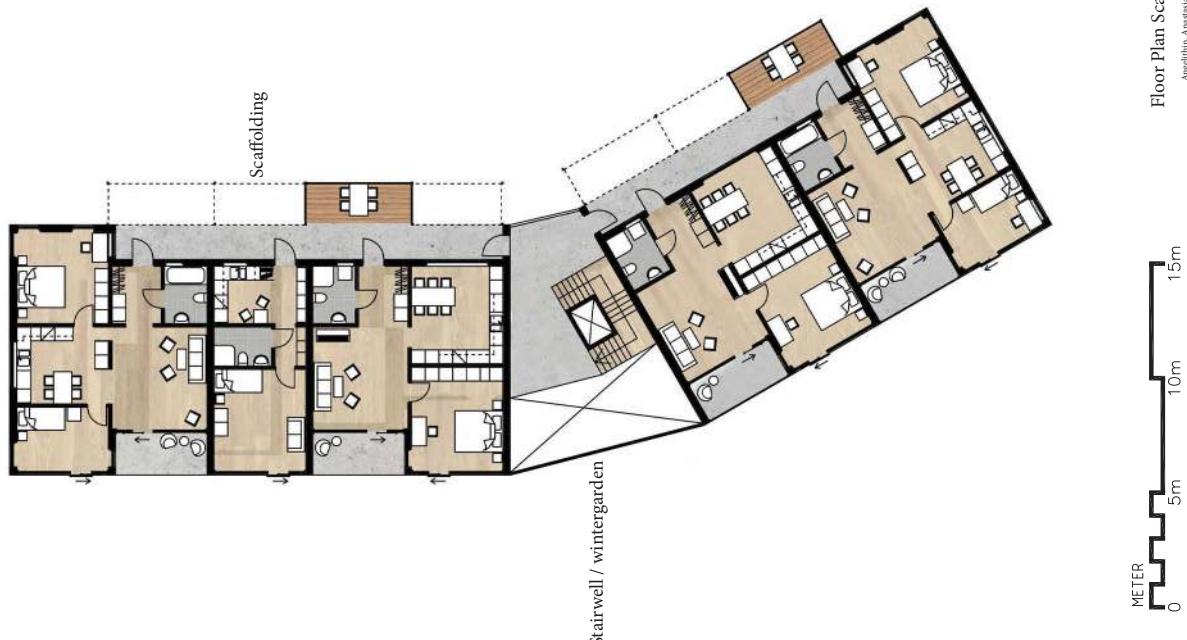
The FRHAMMEN #6 project takes up the given structure and space to create a livelier and extraordinary housing. Here you live different - the inhabitants are given a frame building structure, which is flexible in different ways, such as units, apartments or the individual possibilities of outdoor extensions. The building is in the given environment. They should be interested in organise their own space and involve themselves in the given environment.

The route to the dwelling is more than just a gateway. It is a space for communication, social life and feeling of home. The scaffolding offers an individual, private outside room extension.

Green outside (roof, scaffolding)

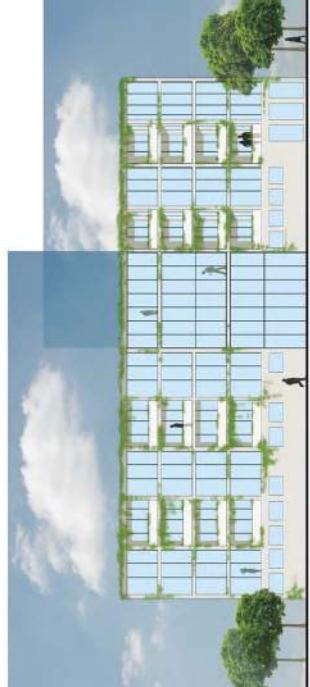
green inside (winter garden, balconies)







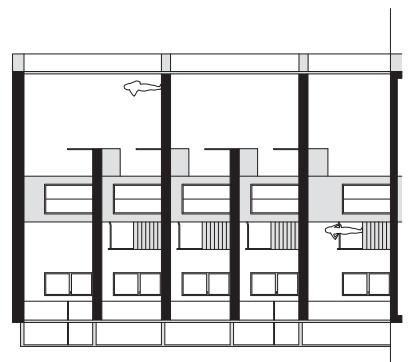
View of the housing from the east side of the pier. Scale 1:200



Park Elevation Scale 1:200

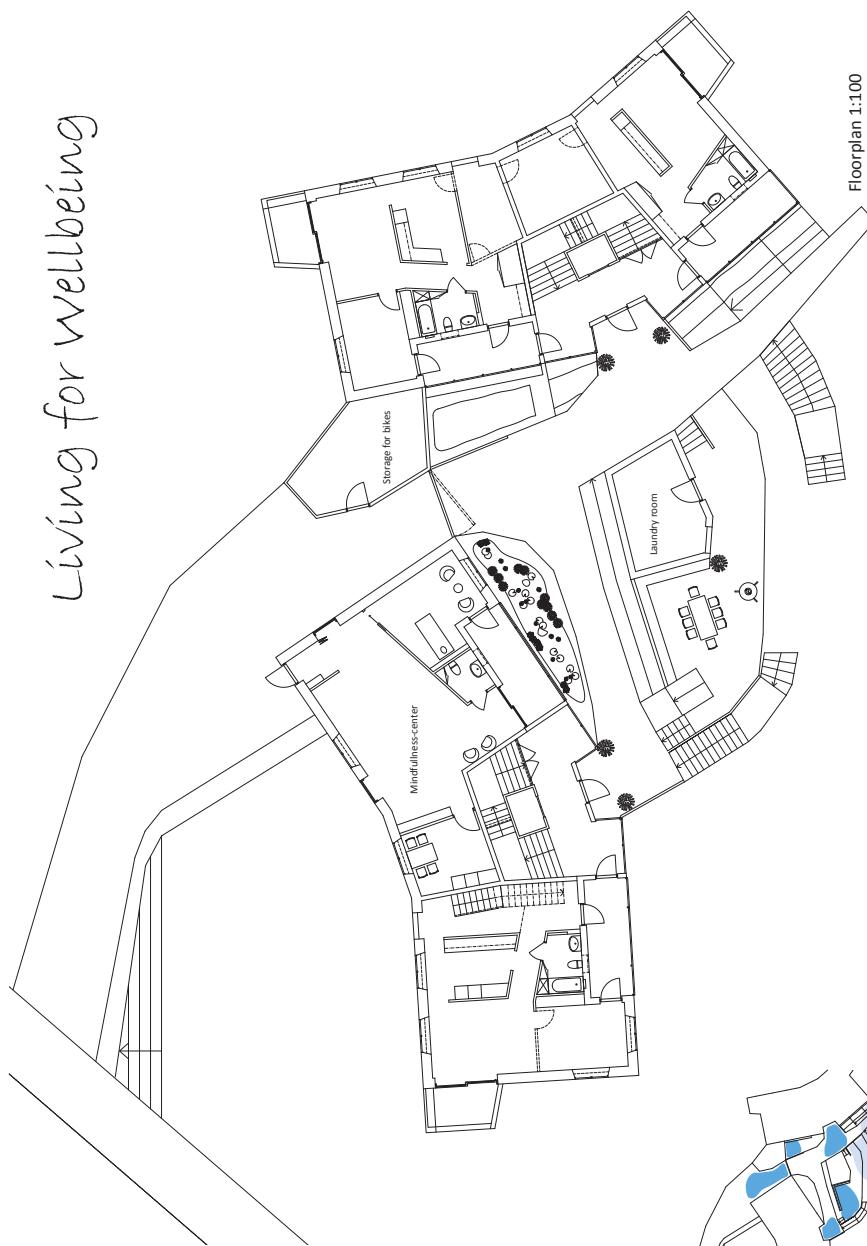


Waterfront Elevation



Section A-A through the stairwell wintergarden Scale 1:100

Living for well-being



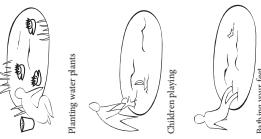
Floorplan 1:100

Water gården.
Experiences of nature has a positive effect on wellbeing and health. Water stimulates many senses with the glittering surface, the rippling sound and the feeling of dipping a hand or foot in the cooling water. The closeness to the water is enhanced by small ponds that make the water accessible for everyone. It can be used in many ways, especially children are fascinated and intrigued by water.

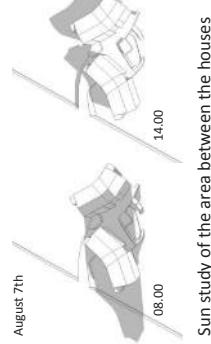
Katarina Rosengren, Kristina Ladåker, Helena Rengemo



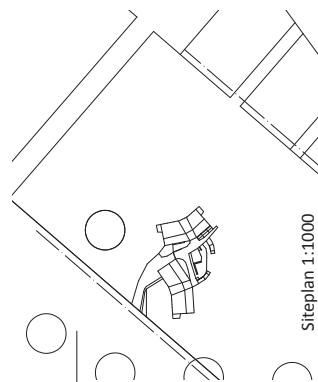
Activities



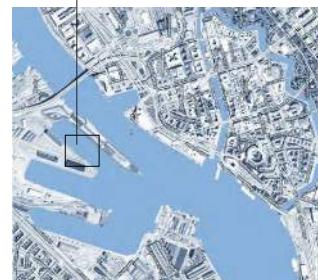
The focus of this project is to create environments for wellbeing. Softcurative design principles have mostly been used in hospitals and nurturing homes. This project brings them into the home to give the residents a physical environment that stimulates the senses, the creativity and creates comfort. In a society where stress related problems are common it is important to build for optimal health to reach social sustainability. Good health is beneficial of social sustainability as well as economic. Furthermore, ecological sustainability often becomes a positive side effect.



Sun study of the area between the houses

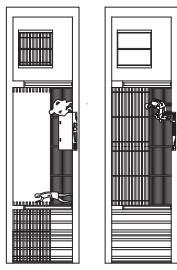


Siteplan 1:1000



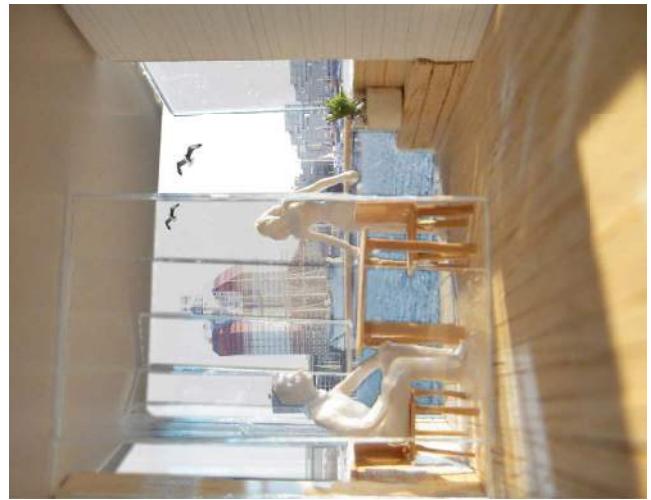


Outdoor room: A private entrance

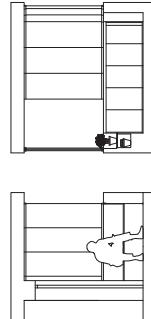


The experience of coming home is divided in different steps. After passing the public bridge, the private common area and the stairwell you enter your own outdoor area before going inside the apartment. These steps give you the opportunity to gradually come home and leave the day's troubles on the way.

The entrance balcony is protected from wind by its shape and position which gives it a nice climate and potential for growing plants. Moveable wooden strips make it possible to choose the degree of sun exposure on the balcony and the bedroom next to it. At the same time the facade and the sunlight in the stairwell is changed. Since the bedroom has a private entrance from the balcony it is suitable for e.g. renting out or having an office.



Outdoor room: A private glazed jetty

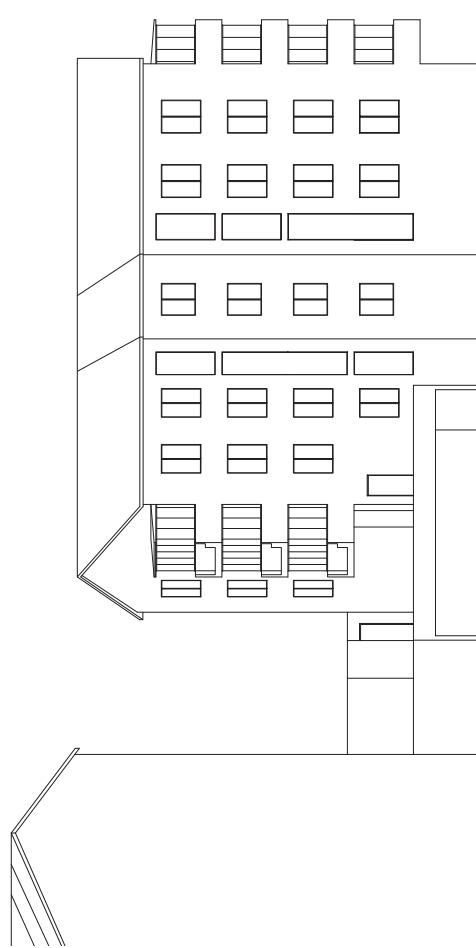


In the other end of the apartment there is a glazed balcony with views in three directions. It's like a jetty that concludes an axis through the apartment. The wooden oak floor inside continues out through the glazed sliding doors and enhances the direction towards the water. The thick wall also continues out and becomes seating and storage. The glazing is removable on two sides so that the inhabitants can change the climate and wind conditions after mood and weather.

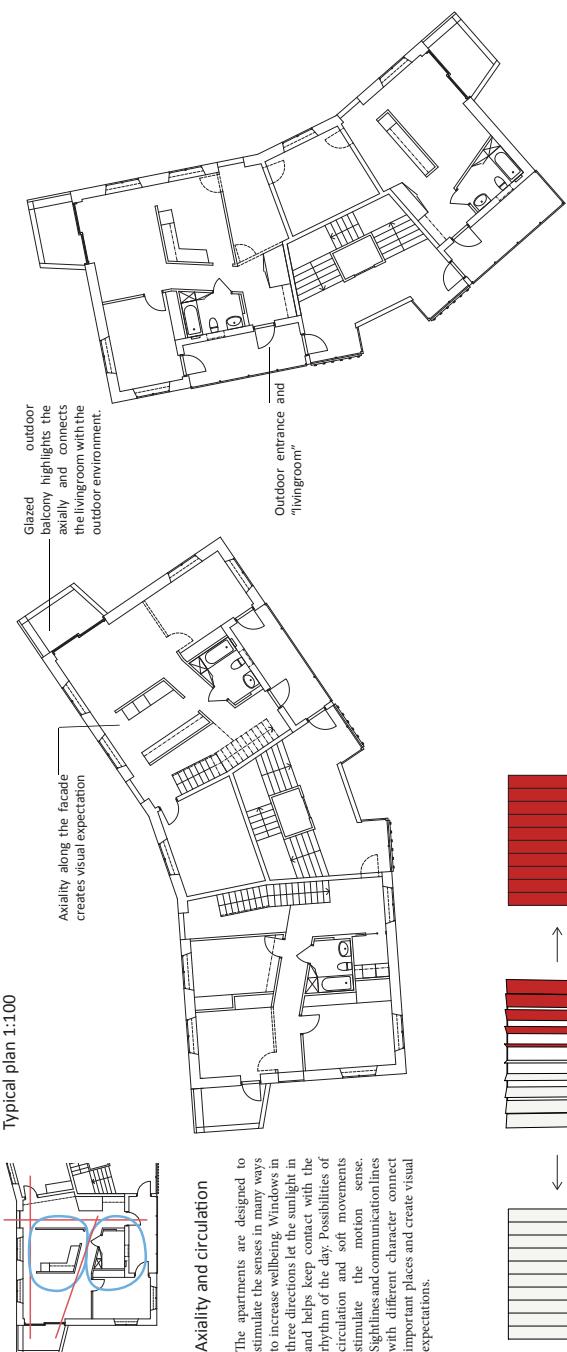


Elevation 1:100

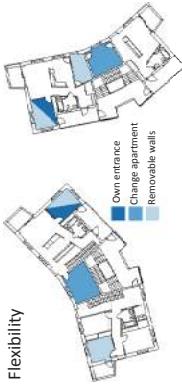
The rhythm of the day influences us greatly. We feel best when we can observe the changes in light during all the hours of the day because it gives us information about the time and the climate. Therefore, these houses The facades also reveal the life inside the buildings. By changing apartments have with windows in three directions. They also have two sun- and wind conditions on the outdoor spaces: the residents patios, which gives everyone possibility to enjoy the sun outdoors most of the day and possibilities for different activities.



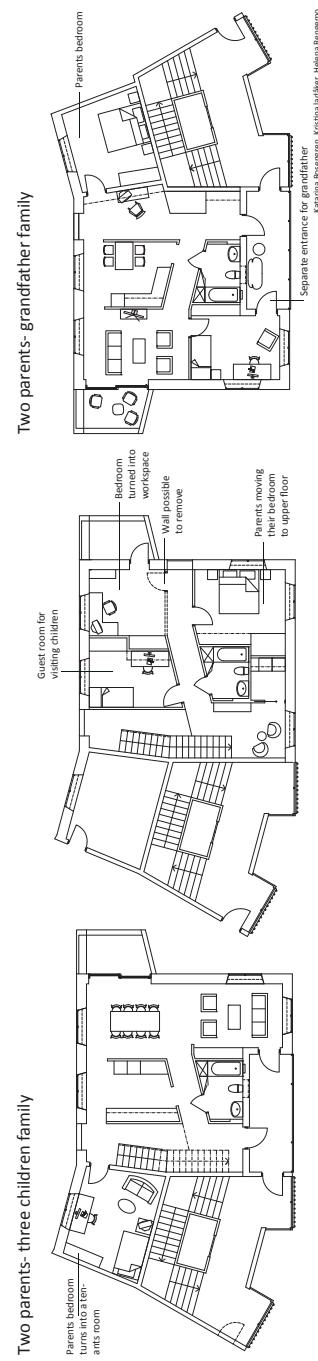
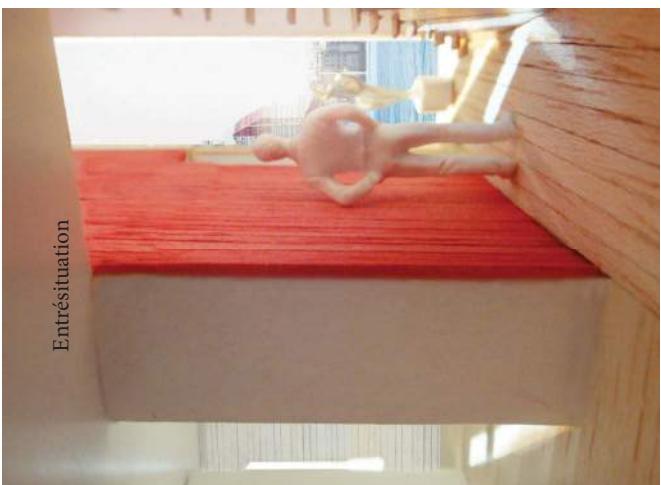
Elevation 1:100
Katarina Rosengren, Kristina Ladåker, Helena Rengemo

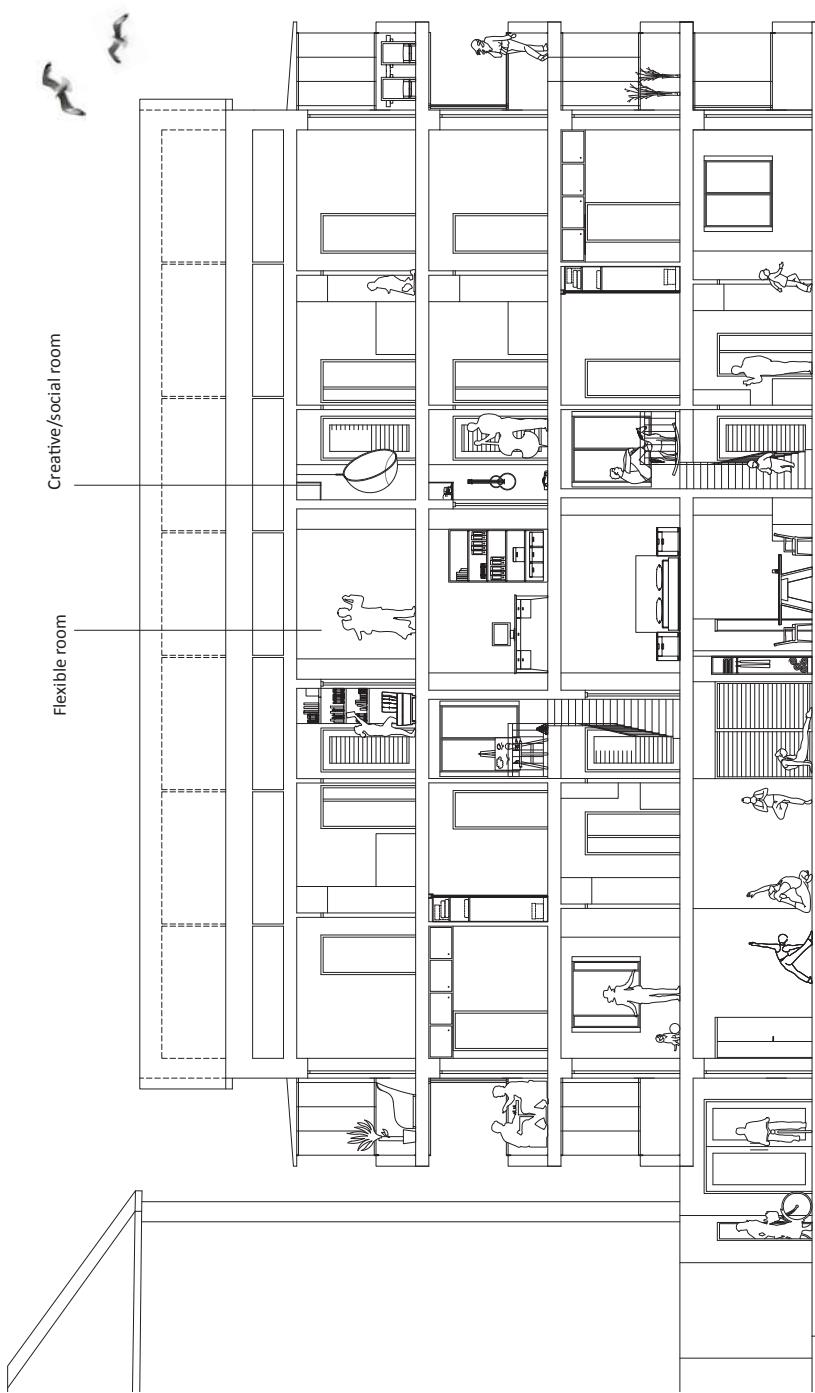


Color is almost as important for human wellbeing, wall allow for a quick color change depending on as vitamins. In the Nordic countries the sunlight in the summer has different tint and strength than in the winter which makes us experience color differently. In the summer we are also surrounded by colors in nature, while in winter it is mostly grey scale. Because of this we need different color palettes for different kinds of activities. Depending on the color palette chosen, the colors should be chosen to enhance Summer colors are lighter and cooler, while winter the desired feeling, colors need to be stronger and warmer. A rotatable



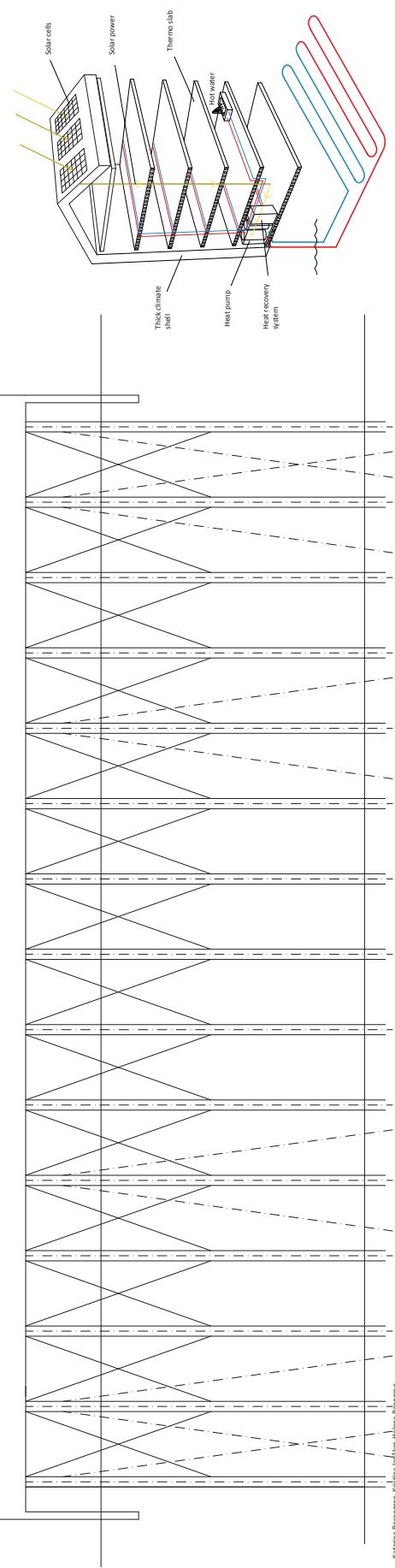
Flexibility



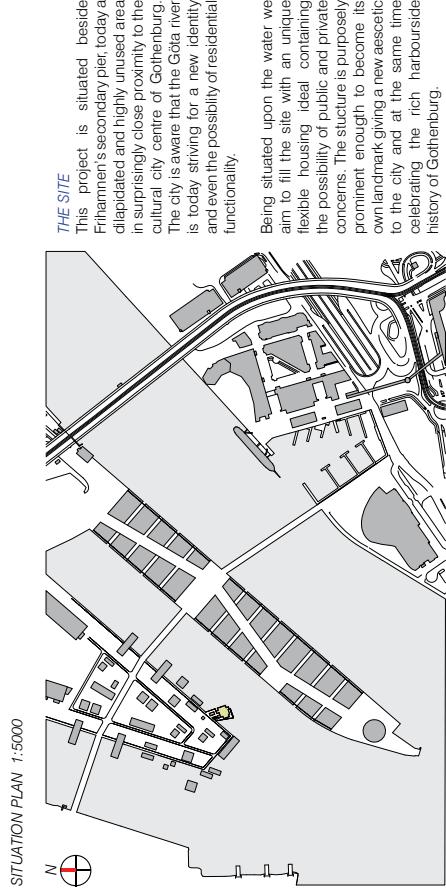


Cultural experiences and creativity is important for wellbeing, especially for children growing up. For this reason a place for creativity should be a natural element in every apartment and not just a temporary space at the dinner table. A place in the core of the home is often well used for children's improvised games, where they are in contact with their parents but not in the same room. This type of rooms is also well suited for creative activities that are not usually planned for in the traditional "kitchen-bedroom-livingroom-apartment". It could be an art studio, library, sewing corner, a place for writing poetry... Only the imagination of the residents sets the boundaries.

The location of the building gives the opportunity to use a water heating system that uses the river as a heat source and is powered by solar energy. The same system can be used to cool the building during the summer. The water is pumped up and heats (or cools) air that is distributed to thermo slabs. This eliminates the need for radiators and gives a nice, even heat distribution to the apartments.



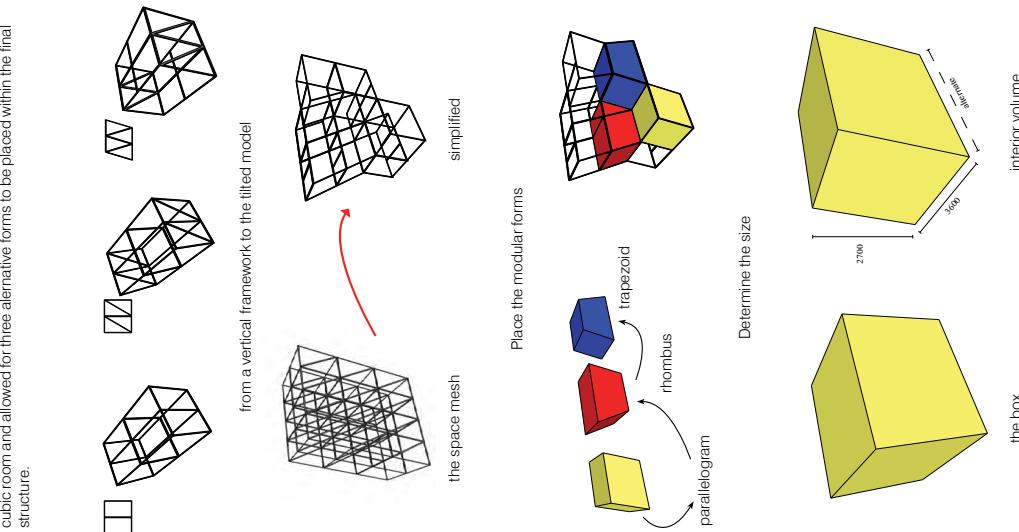
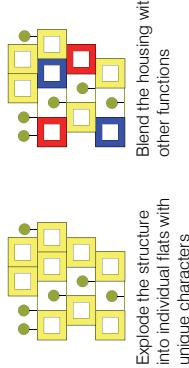
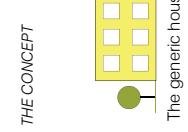
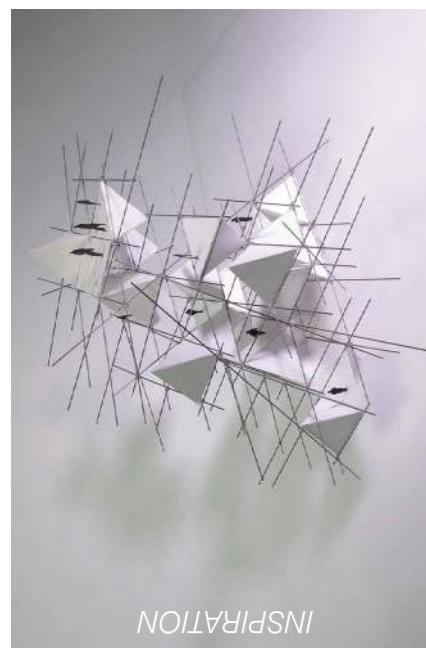




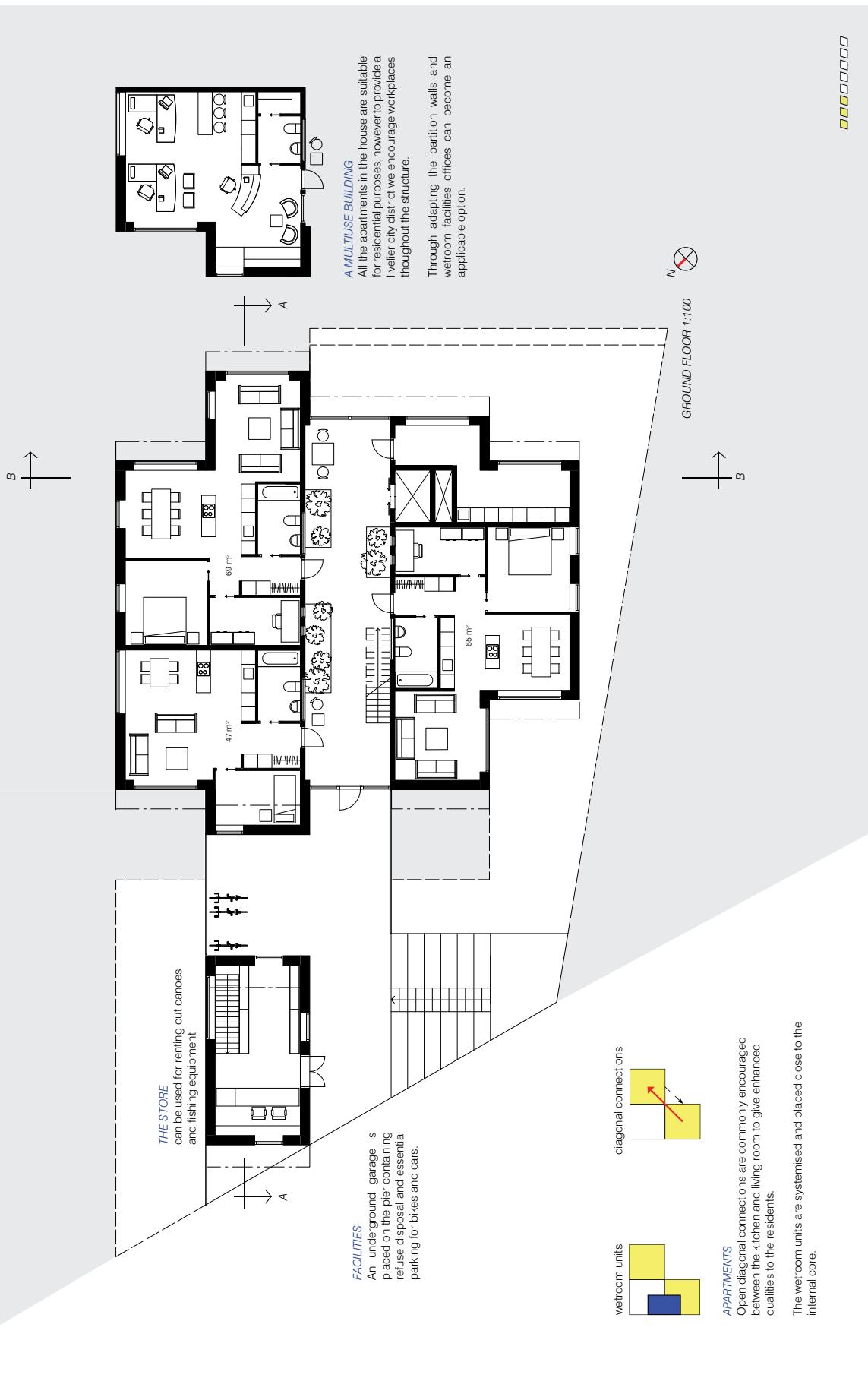
THE LIVING VOLUMES
The size of the truss used to shape the building is based on measurements that will give general and usable interior spaces, suitable for today's housing standards.

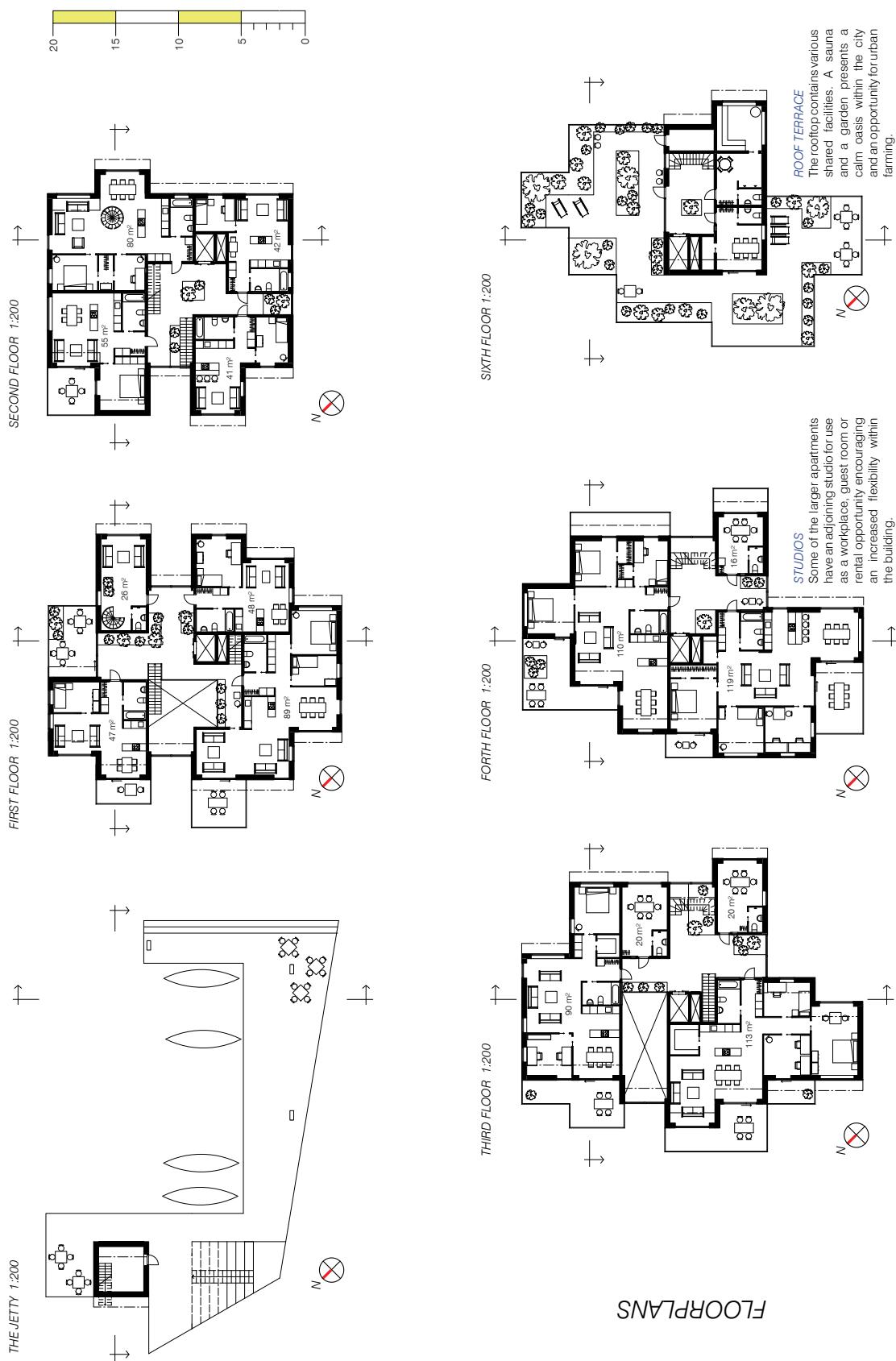
Manipulating the space frame in a series of steps broke the generality of the cubic room and allowed for three alternative forms to be placed within the final structure.

Being situated upon the water we aim to fill the site with an unique flexible housing ideal containing the possibility of public and private concerns. The structure is purposely prominent enough to become its own landmark giving a new aescetic to the city and at the same time celebrating the rich harbour side history of Gothenburg.



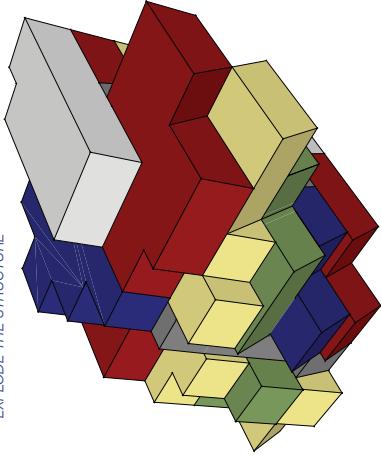
THE GROUND FLOOR







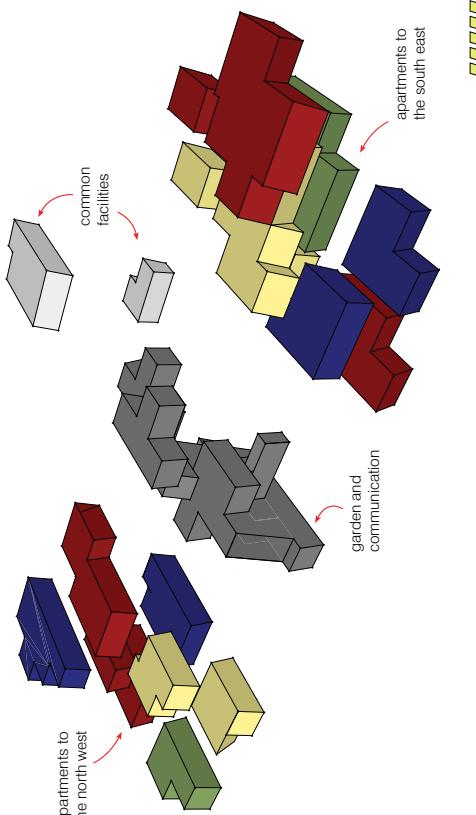
EXPLODE THE STRUCTURE



UNIQUE APARTMENTS

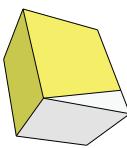
The modular construction of the building encourages a configuration of individual space. No apartment is exactly identical to the other, which gives a unique character to the house.

Visually exploding the effectively reveals the alternative functions within the main body of the building.



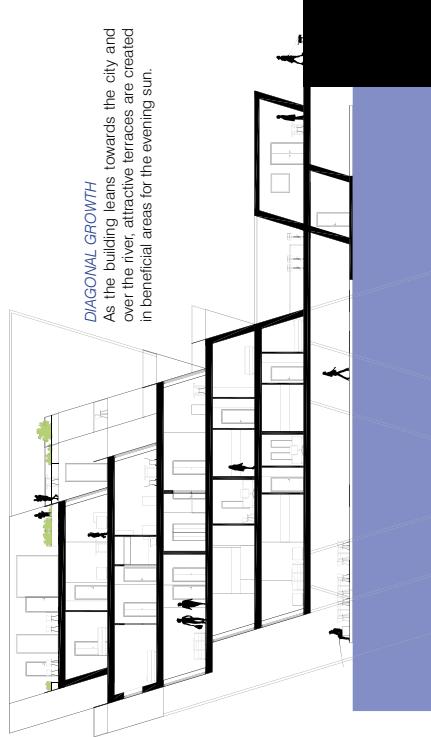
THE LOGGIA
The spacious stairwell is combined with a pleasant wintergarden acting as an inferior alternative to the configuration of the traditional court yard. The procession to ones own private space is enhanced whilst the chances of spontaneous meetings are firmly encouraged.

THE ANGLE
The tilted walls provide an attractive dynamic giving the little extra and sense of uniqueness that the atypical box can lack.
The angle is excentuated enough to provide a visual difference without the uncomfortable feeling of collapse.
Sheving units, wall mounted furnishings and panoramic windows all allow this to become a striking feature throughout the structure.



This area allows the inhabitants to place personal belongings outside the flat adding to the overall imprint of individuality the structure promotes. Any workplaces in the building can place signs and information within the area adding to the general sensation of the internal street.





SECTION AA 1:200

THE JETTY

Beneath the building the small pier provides the residents with a close relationship to the river. An inbuilt bench for fishing and recreation is placed to the far south. With exception of the steps and rental storage area of the stor, the pier is adapting to the water level.



SECTION BB 1:200

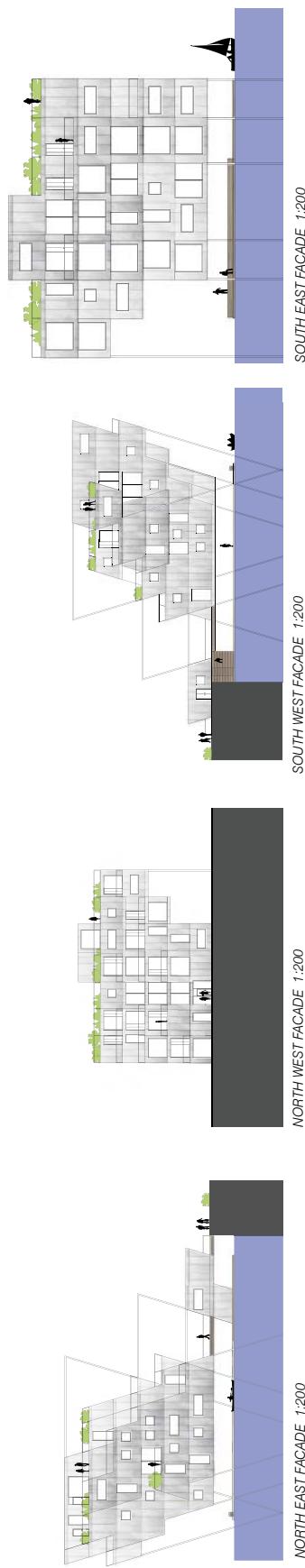
THE STRUCTURE

The house is made of a light weight steel structure. The load bearing aspect is based upon a simple truss system and in some places the steel beams are allowed to penetrate outside the building shell as a visual connection to the old shipyard tradition of Gothenburg.

The slabs are thicker than average, to avoid a step up to the terraces. This also allows better sound isolating qualities between the floors and provides a space for the plumbing to be efficiently drawn through the semi-slabwork.



THE FACADE

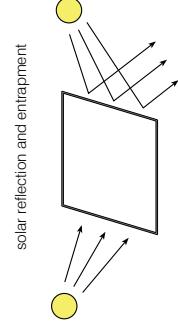


SOUTH EAST FAÇADE 1:200

SOUTH WEST FAÇADE 1:200

NORTH WEST FAÇADE 1:200

NORTH EAST FAÇADE 1:200



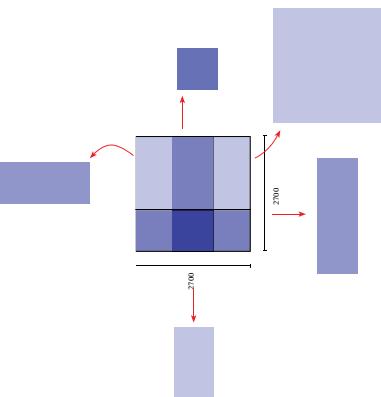
solar reflection and entrapment

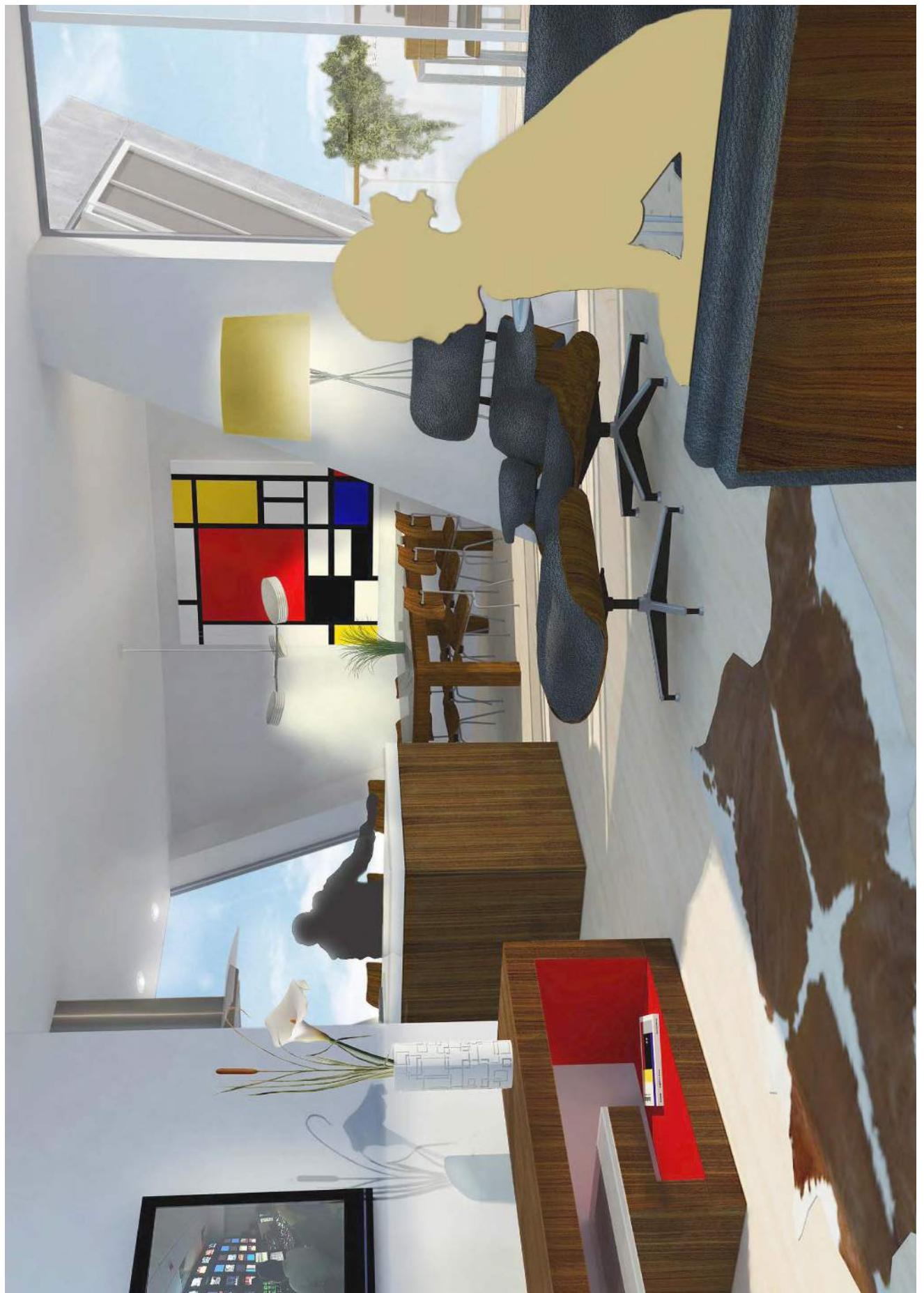
SUN INLET
The angle of the facades help to deflect the sunlight to reduce the heat inlet in the south facing windows. There is also the possibility to use the river in conjunction with the houses air conditioning system. The energy use can therefore be effectively reduced while a comfortable living environment can be achieved.

WINDOWS
The size and shape of the windows follow a particular system. The highest windows are reaching from floor to ceiling and others are regulated by dividing by three.

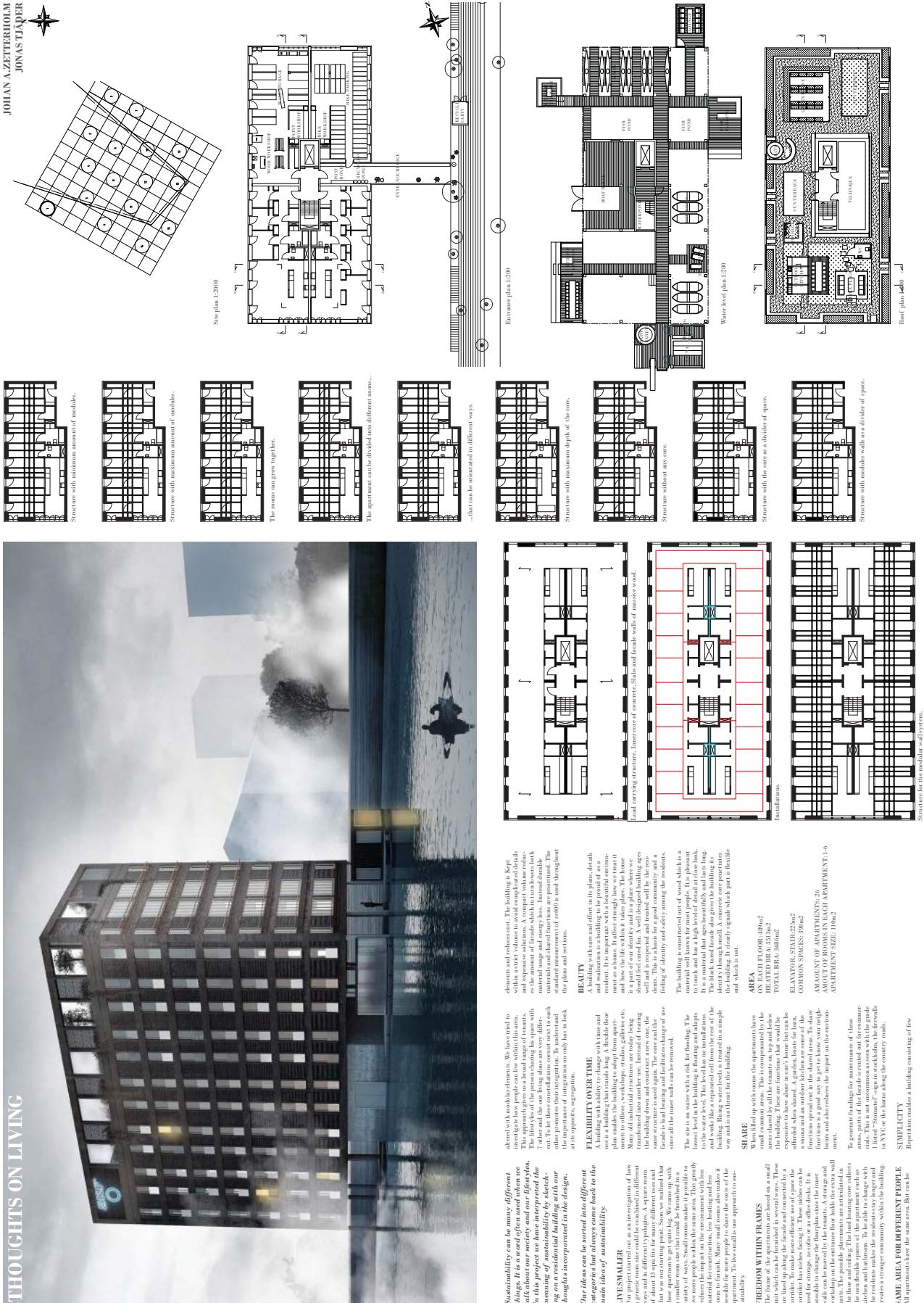
MATERIALITY

The exterior facade of the building is clad in zinc panels. A material which is fully recyclable. Contrasting to this hard shell, the stairwell and decking are constructed of untreated Siberian larch, providing a much softer internal character and furthermore allowing for a natural exterior patterning over time.





Studentprojekt. Johan A. Zetterholm, Jonas Tjäder



THOUGHTS ON LIVING

Sustainability can be many different things. It is a word often used when we talk about our society and our lifestyles. In this project we have interpreted the meaning of 'sustainability' by sketching ideas on a residential building with our thoughts incorporated in the design.

Our ideas can be sorted into different categories but always come back to the

FLEXIBILITY OVER TIME A building with a ability to change with time and altered with modular elements. We have tried to investigate how people can live within this area. This approach gives us a broad range of tenants. The lifestyle of the person sharing his space with 7 other and the one living alone are very different. To let these constellations exist next to each other promotes their integration. To understand the importance of integration on only has to look at its opposite, segregation.

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plan enables the building to adapt from apartments to offices, workshops, studios, galleries, etc. Many old industrial structures are today being transformed into another use. Instead of tearing down the building and construct a new one, the same structure is used again. The new facade is built on, and facilitates change of use since all the inner walls can be removed.

The site is on water with a risk for flooding. The lowest level in the building is floating and adapts to the water level. This level has no installations and works like a separated cell from the rest of the building.

LIVE SMALLER Your project started out as an investigation of how a garage room size could be combined in different ways and in different typologies. A square room of about 13 sq ft for many different uses and sizes was your starting point. So, we realized that here was our starting point. We came up with a smaller room size that could be furnished in a variety of ways. Small rooms have to provide to live more people within the same area. This greatly minimizes the impact on the environment. With less material for construction, less heating and less energy used to furnish. Many rooms also makes it

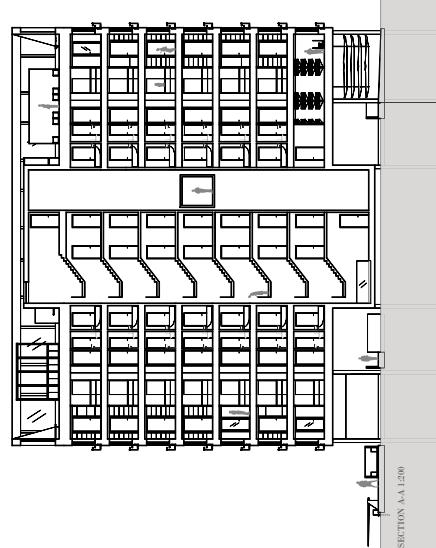
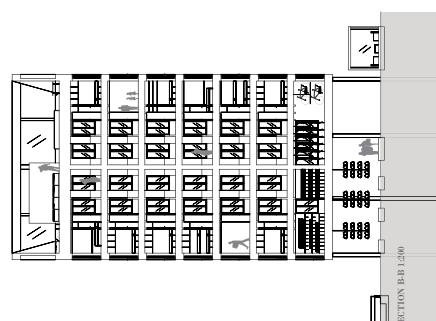
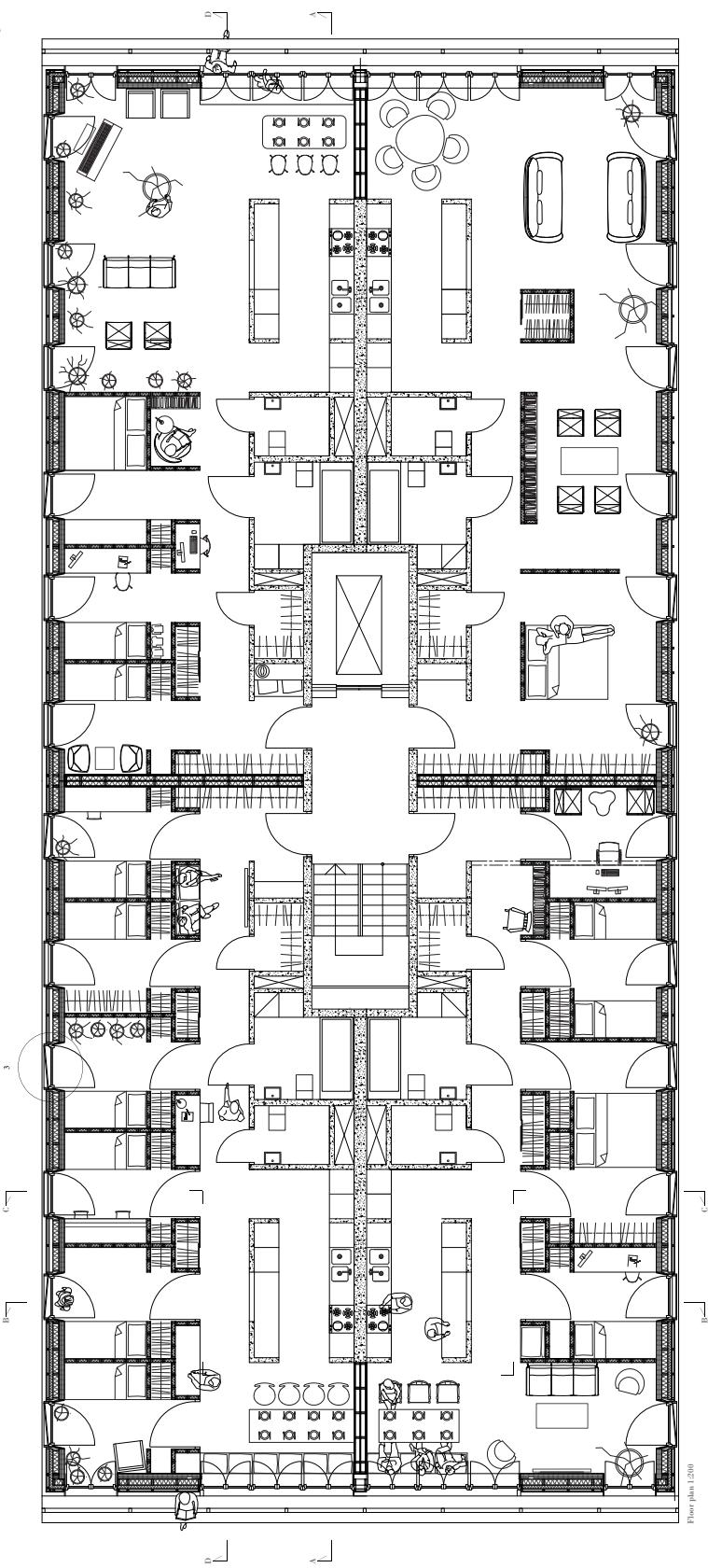
SHADE When filled up with rooms the apartment has a small common room. This is composed by the areas shaded by all the rooms on top and below the building. These are functions that would be expensive to have alone in one's home but can be afforded when shared. A garden plot for lawn, a sauna and an outdoor kitchen are some of the functions spread out in the shared areas. To share functions is a good way to get to know your neighbor and also reduces the impact on the environment.

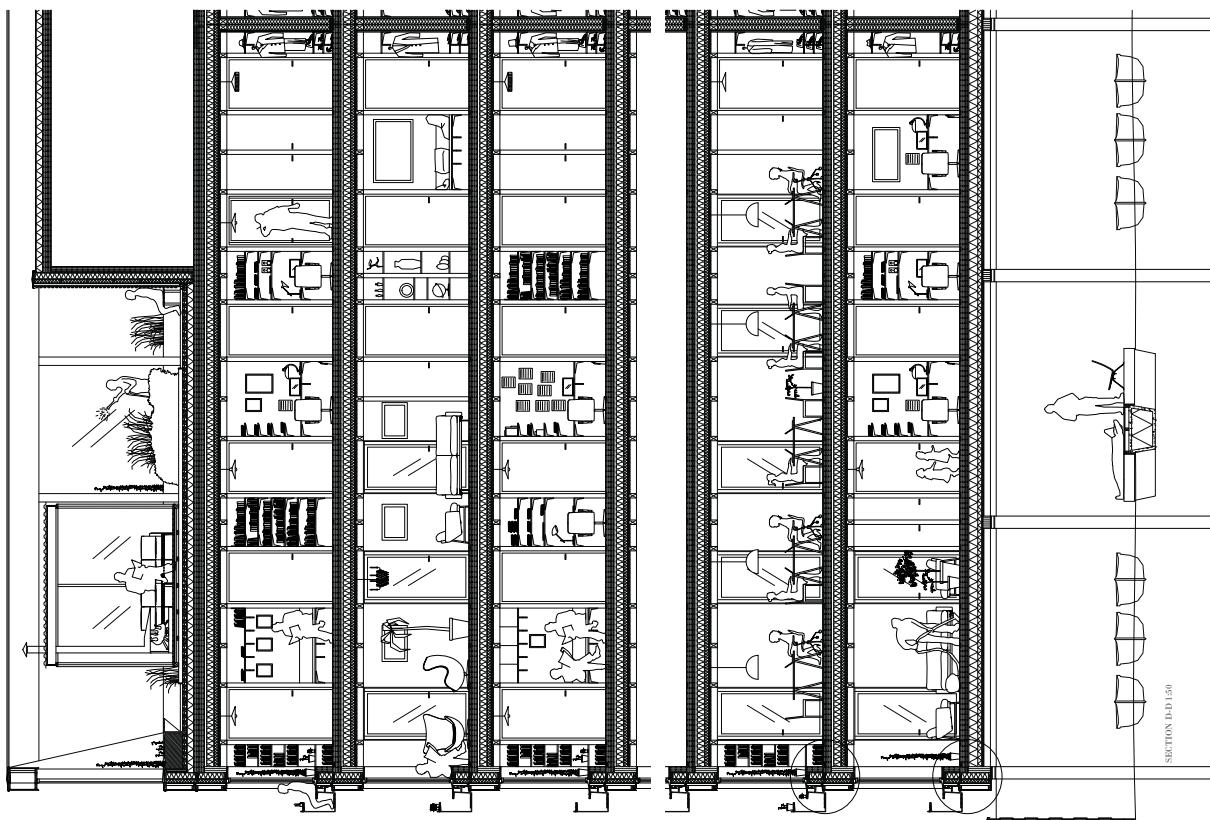
To generate funding for maintenance of these areas, parts of the c�ade are rented out for commercials. This is not uncommon as seen with the grade I hotel "Statonar" seen in Stockholm, the firewalls in NYC or the barns along the country roads.

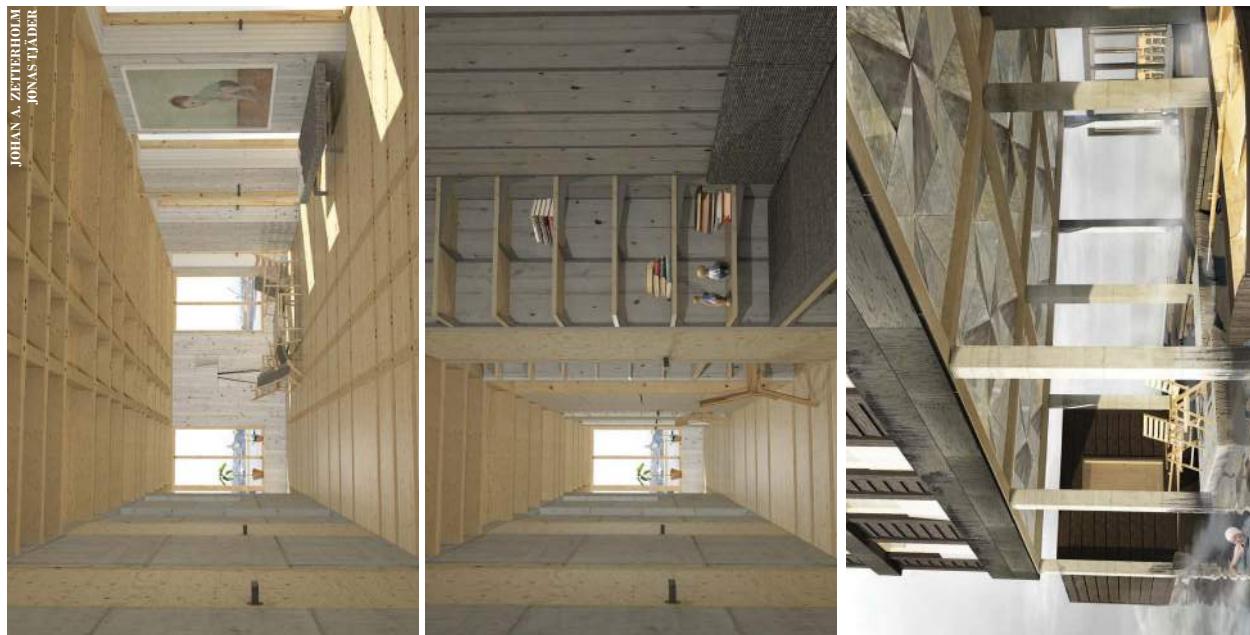
SAME AREA FOR DIFFERENT PEOPLE
In all apartments have the same area. But can be the floor and ceiling. The load bearing core collects the non flexible space of the apartment such as kitchen and bathroom. To be able to change with the residents makes the residents stay longer and creates a stronger community within the building.

JOHAN A. ZETTERHOLM
JONAS TJÄDER

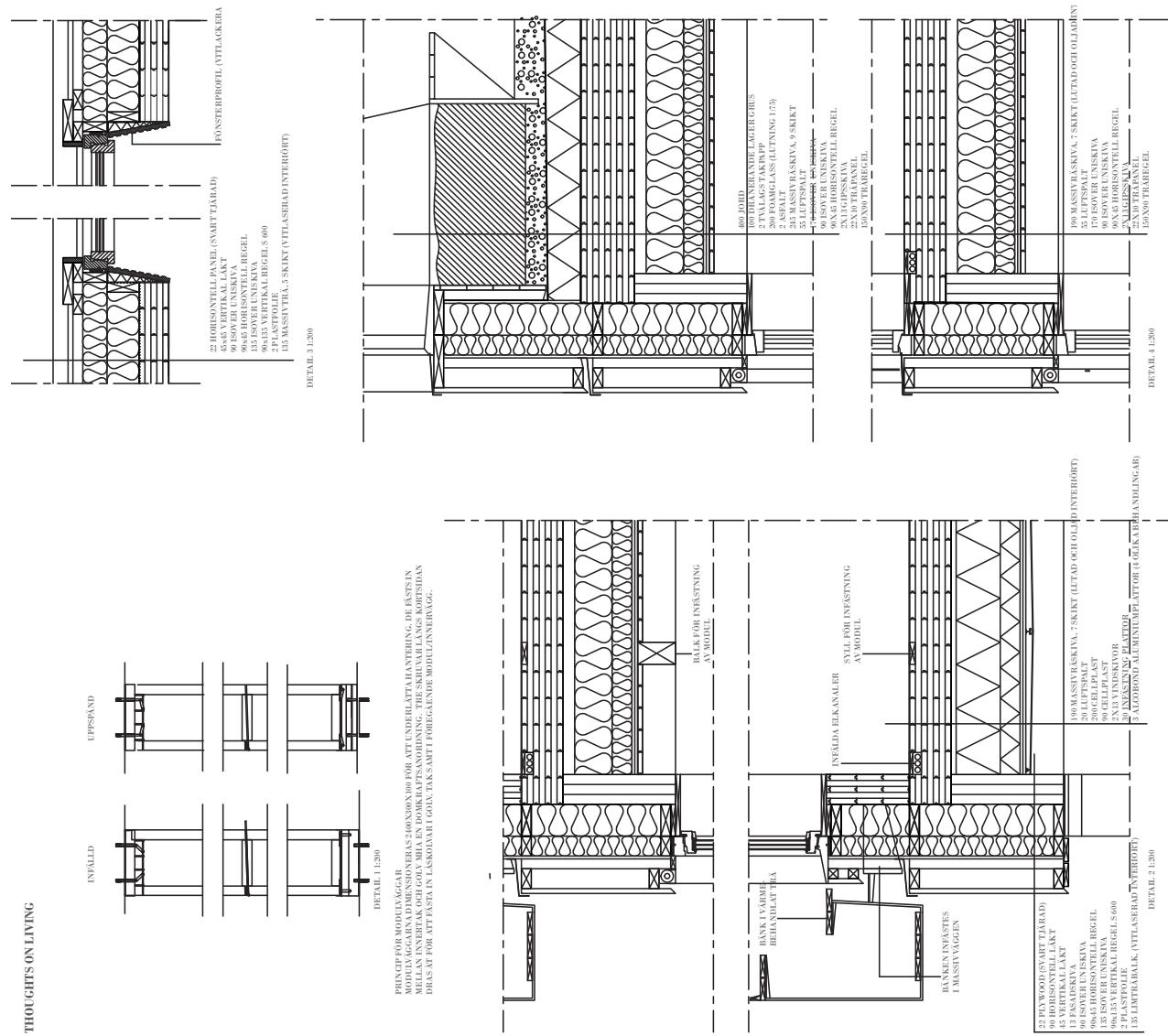
THOUGHTS ON LIVING







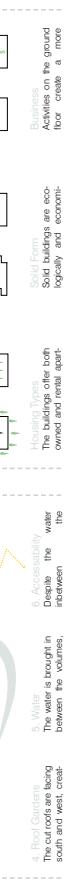
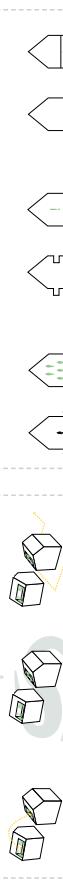
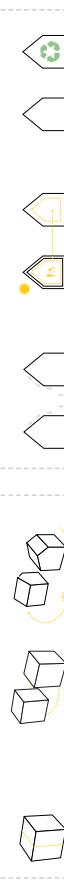
IAN A. ZETTERHOLM
JONAS TÄDER



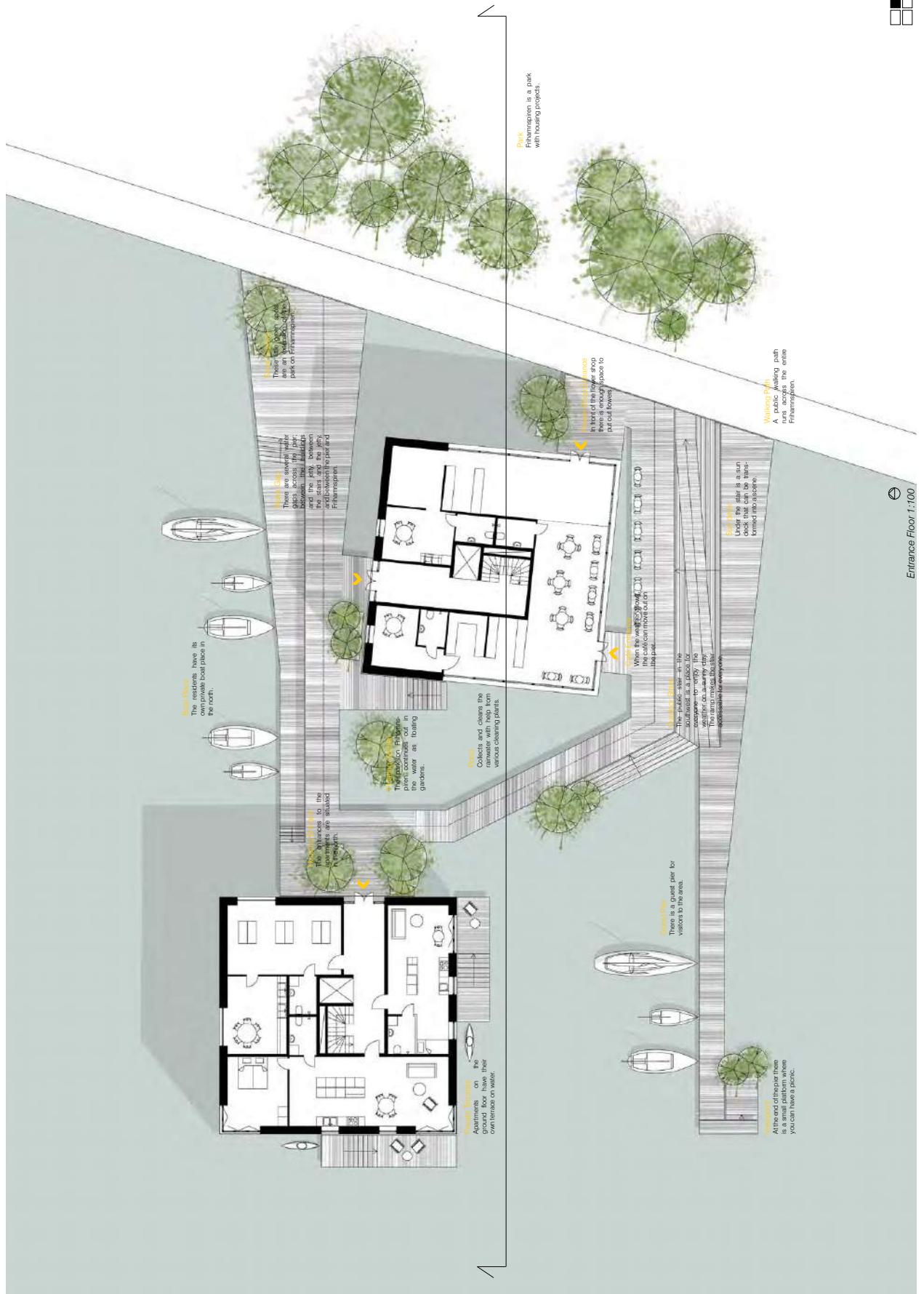
WATER GAP

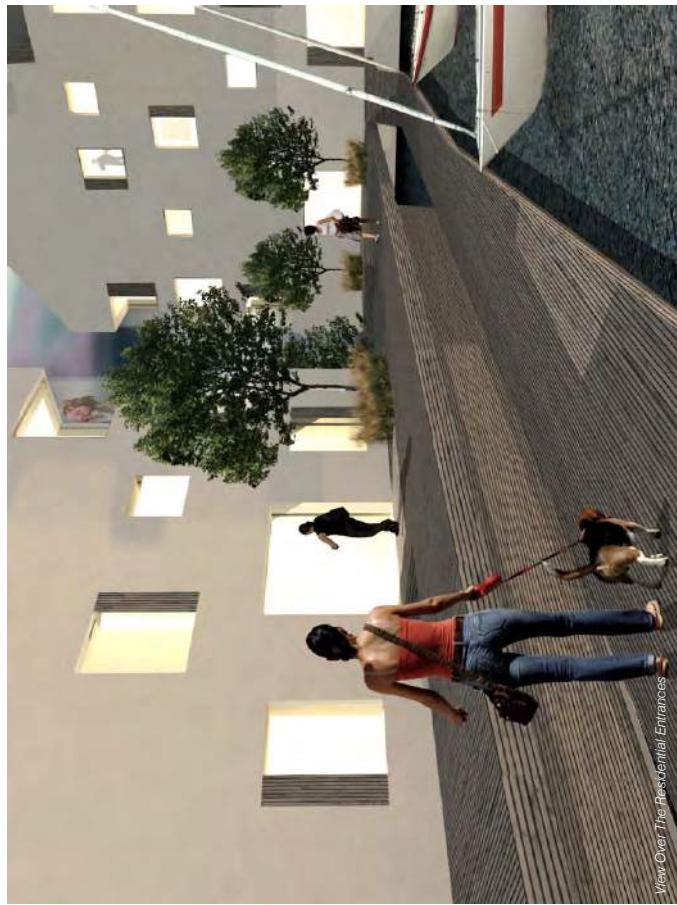
Housing Exhibition: Future Visions of Living 2021

Housing Inventions
Chalmers University of Technology, MPARC 2012
Anela Fehraková, Anni Reitschäk, Jonna Eber



View From The Water In The West





Composition

The building consists of six floors, where the basement floor is under water. In the basement there is storage for every apartment, common laundry room, a common entrance, a common staircase and a common toilet. On the ground floor there is a public space for activities and businesses and in the westbuilding there are two apartments and a common working space. On the other floors there are common gardens in both buildings.

Apartments

All the apartments have the same structures and are based on the same ideas. They keywords for the apartments are good light conditions, accessibility, a central core and horizontal and vertical flexibility. In every apartment the kitchen is situated in the middle near the entrance, the spaces on both sides of the kitchen can be used as a living room or a common space used either as bedrooms or common space. All apartments are light and situated to get most of the daylight. Each apartment and veranda has its own balcony. The veranda is a way to connect the apartment to the outside world. The balconies are private outdoor spaces.

Furniture Layout

Göteborg is located near the Göta Älv and the sea, which has a great qualities I hope to reuse that the city does not take advantage of anymore. The water used to be more present in Göteborg but has been excluded for a long time. Today there is a strong decision on how to use the water again.

In this project the main goal has been to enhance the presence of water, as they are from the hard and sand buildings, as they are from the water. The space are also used to strengthen the presence of water and to enhance the feeling of living on water.

Typical Floorplan 1:100

Typical Apartment 1:100

Second Floor

On some floors there are three smaller apartments suitable for one to two families, where one apartment on the floor that has its own roof terrace.

Second Floor

The apartment is not only flexible horizontally but also vertically. The second floor can be rearranged and rented out as a separate apartment. Or perhaps the apartment will be split up into two smaller apartments capable of living by themselves. This second floor has two bedrooms and a bathroom, which can be installed when ever needed. If one does not have use for the bathroom it can be sold off to the neighbors who can then sell it to someone else.

First Floor

On the first floor in the apartment is a spacious kitchen in the center. In the difference between the two rooms in the north with a bathroom and a large common space in the south. It is divided in one bedroom and one child room. The parents and one child sleep on the first floor and two of the children sleep on the second floor. There is also room for a common space on the right side of the stairs on the second floor, here you can choose to have a bed room, a study room or a computer room. The apartment has a large glass wall in the corner, which can be closed. A door leads to a private outdoor space.

Typical Apartment 1:100

Second Floor

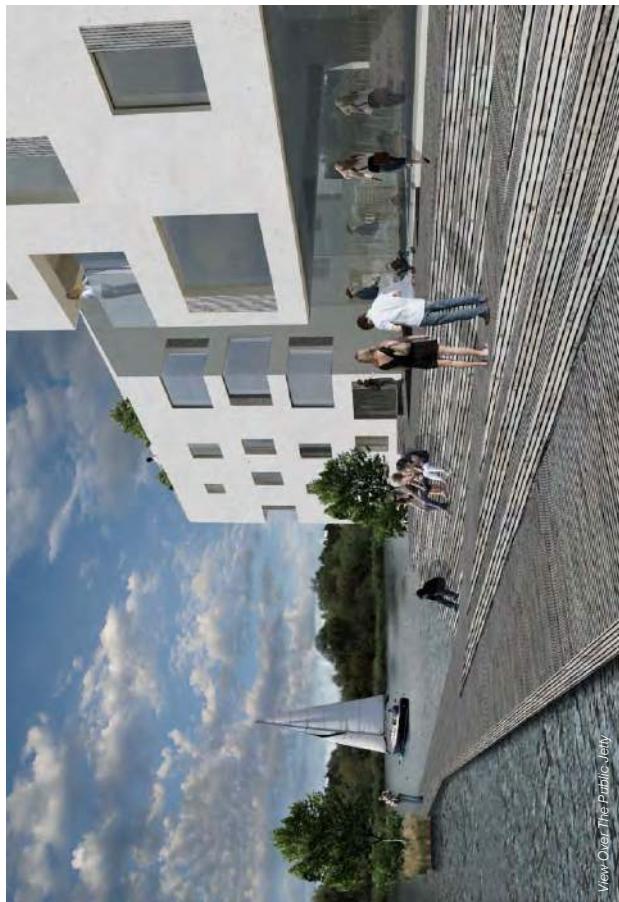
On some floors there are two larger apartments situated for bigger families. In these apartments it is possible to create an extra room.

Second Floor

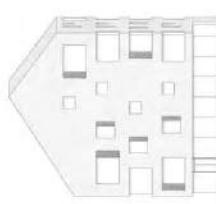
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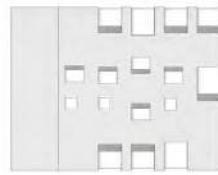
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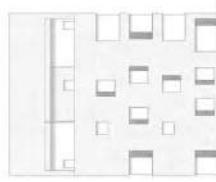
View Over The Public Plaza



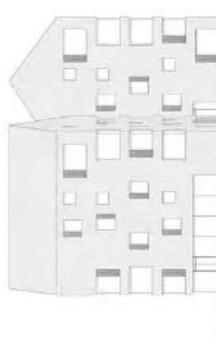
South Facade 1:200



North Facade 1:200



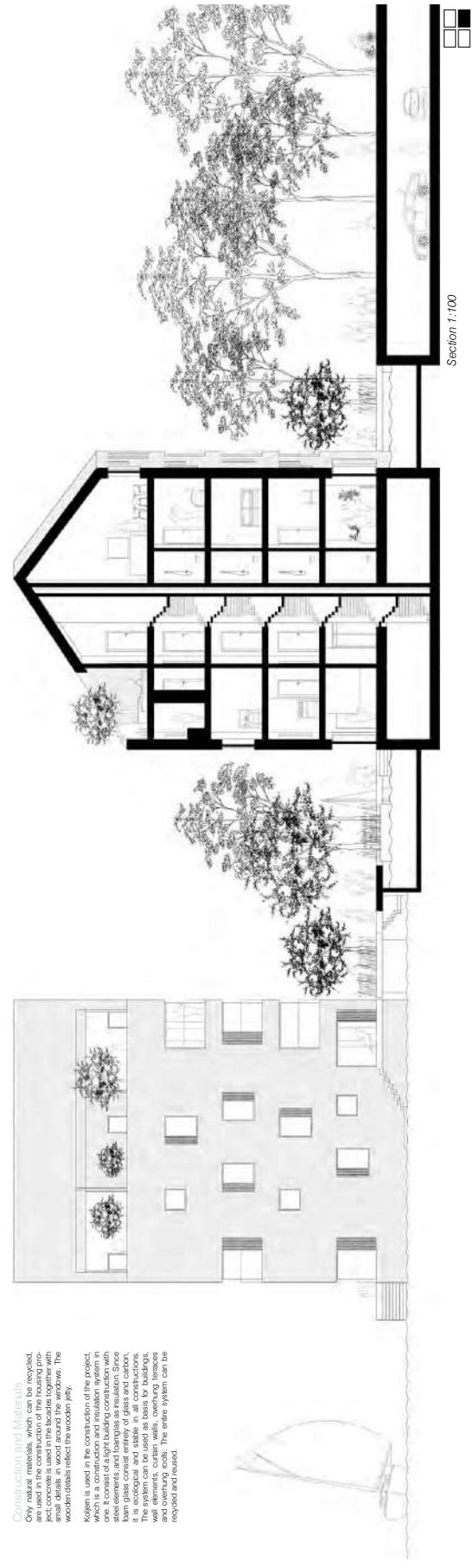
East Facade 1:200



West Facade 1:200

Construction and Materials
Only natural materials, which can be recycled, are used in the construction of the housing project. The walls are made of concrete and the roof is made of wood. The windows are made of glass and are framed in wood. The wooden details reflect the wooden style.

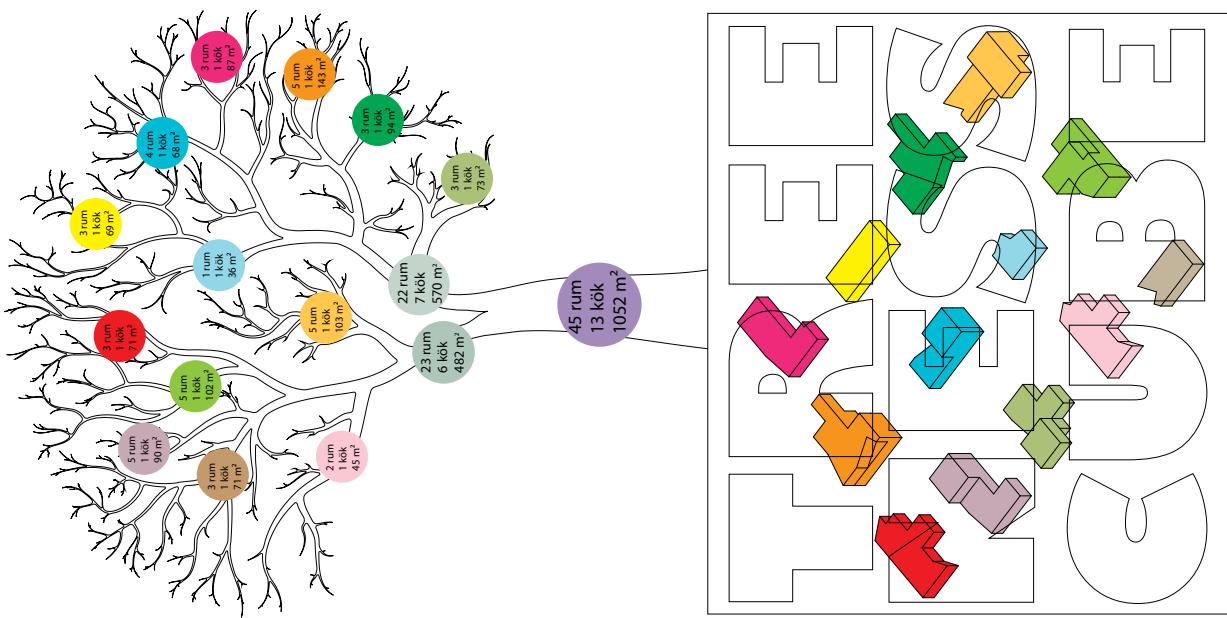
Kolam is used in the construction of the project. Kolam is a concrete and insulation system. One part of the system is concrete and the other part is insulation. Since many glass consists entirely of glass and carbon, it is ecological and stable in all constructions. The system can also be used as a basis for buildings with a low energy consumption and low overhead costs. The entire system can be recycled and reused.

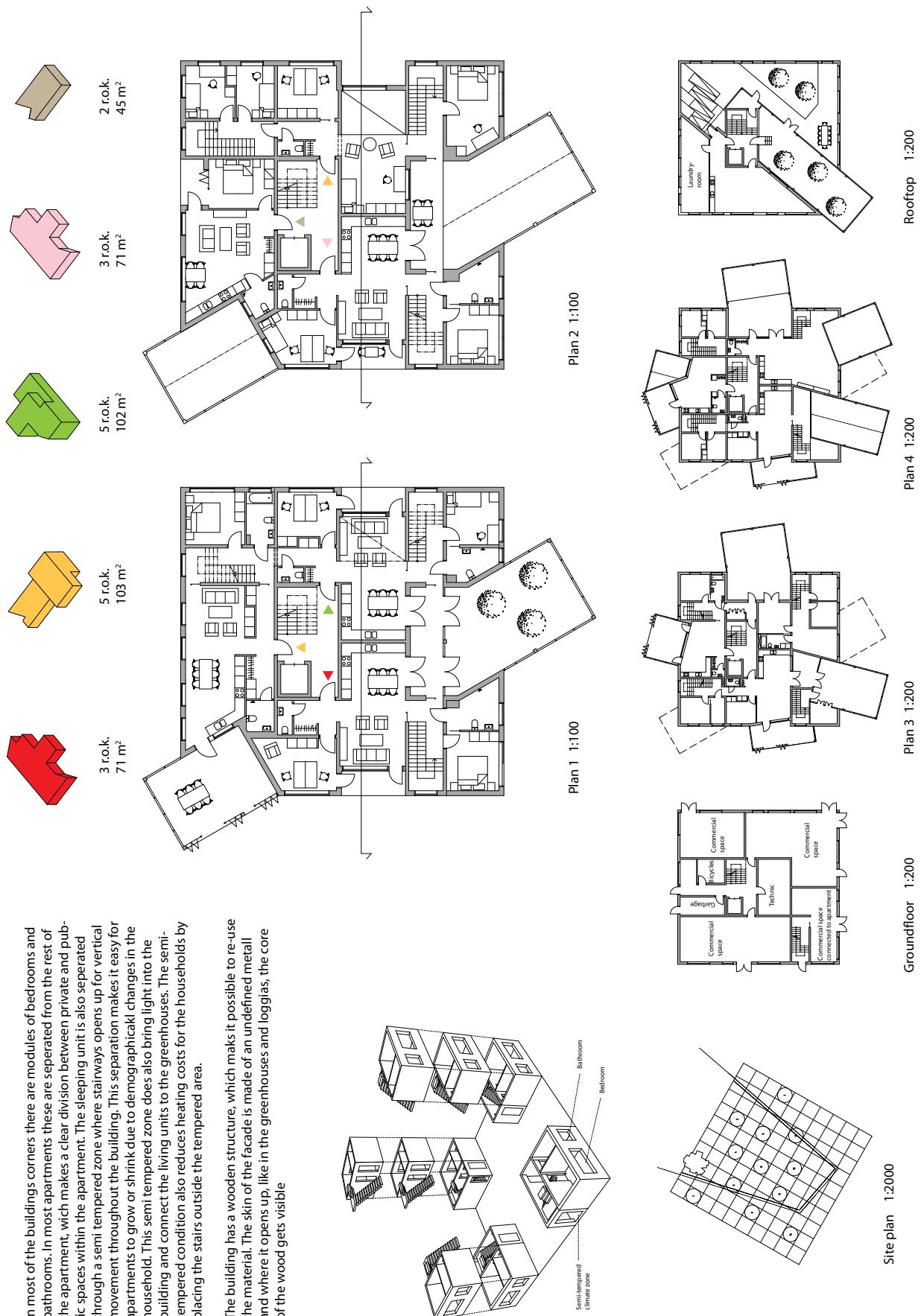


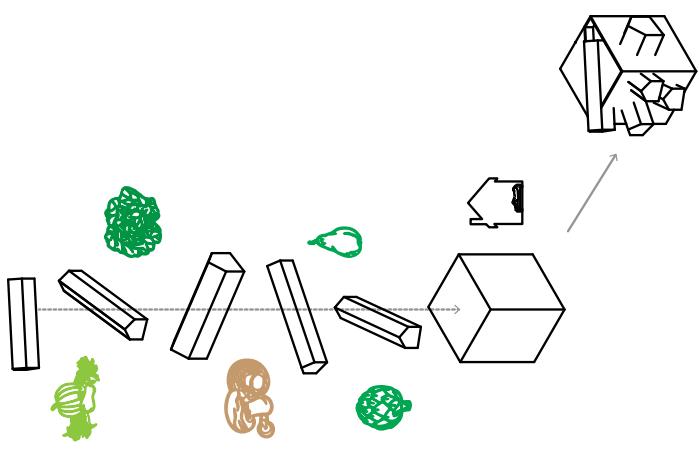
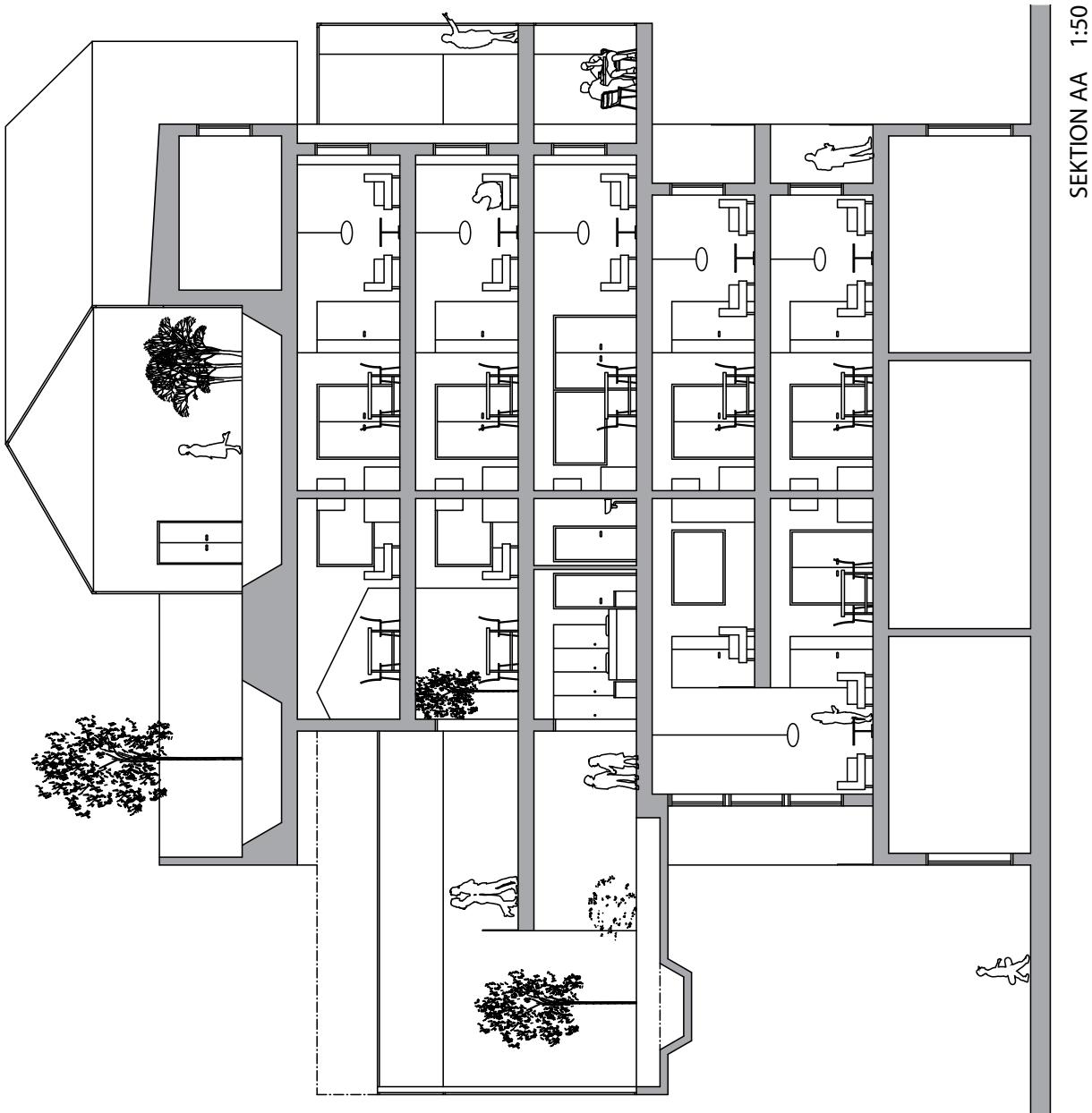


The tree-ness cube is organized in a way that makes it possible, by small interventions, to make it as one big household. And with that as a starting point, you can divide it in several ways, which makes it suitable for collective housing as well as large families. Every apartment can in that sense be seen as a branch of a tree, that on one point connect to the other branch and so on.

As the cities are getting denser and denser, they are also becoming more three dimensional. Needs that traditionally could be taken care of in a horizontal planning process, like for example ecosystem maintenance and food processing, will likely depend on vertical solutions and inventions. The image of the tree as three dimensional footprint of the living has a long tradition, like for example the tree of life, and in this project I scale that tree down to the footprint of my residential building.







Stacks of greenhouses with different possibilities and different usage, creates a vertical garden with food production capabilities. They connect to the life inside the traditional cubicistic house. All apartment has a connection to at least one greenhouse/loggia. And the largest one in southeast is available for everyone.

