

HAUS

the House

des
of

Forgetting

Vergessens



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HAUS DES VERGESSENS

The House of Forgetting

MASTER'S THESIS

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AFFIDAVIT

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Graz, March 2021

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ABSTRACT

The general subject of this thesis is architecture for people with dementia. The topic proves itself important due to perceptual disabilities accompanying people suffering from dementia. Dementia as a syndrome brings along a general deterioration in cognitive performance, affecting not only memory but also speech, movement and sensory perception. Such impairments can provoke many problems in everyday life, and require suitable adaptation of a person's living environment, which includes rethinking of architecture and its interiors. After all, deterioration of memory indirectly means also a decline in spatial orientation. Architectural responses to this subject are mostly limited to the architecture of facilities for the elderly, care homes or memory clinics. They provide different takes on the loss of orientation and tendency to wander, recognition of personal space.

In the private spectrum, the existing home of a person with dementia can be adapted to suit the new needs of its resident, but there is a lack of proposals that would directly address architectural design or provide a strategy for planning with dementia in mind.

Direct sensations are what remains after the decline of cognitive faculties and at that point, architecture can take the role of a provider and enhancer of sensory experiences. The role of architecture in this relation was further researched and discussed in several conducted interviews with people who

relate to this matter; two professionals working with people with dementia, as well as an architect who planned the Memory clinic for dementia patients in Graz. The focus was on their observations concerning architecture and behaviour in different spaces. Other discussions came up in those interviews, concerning more elementary aspects of a human in connection to architecture - the security and safety, the "being at home" and the integration of multi-sensory elements in the architecture.

As the design strategy started to develop, my own memories and personal experience were taken into account for some special architectural features and situations in my past homes. Those were then implemented, as well as sensory design principles, in finding the layout and the form for a home for a person, who may be struggling with memory loss.

The conceptual design was set into an abstract environment, and the focus was aimed on the fluency of the layout, harmony of the spaces and contrasts between them.

Individualistic features that characterize the building and its interior prevail over the conventionally predominant aspects of designing and constructing. The interior of this conceptual house can be viewed as a journey, always arriving at a new destination, meanwhile possibly forgetting the point of departure; and bewondering it anew when arriving once again.

INTRODUCTION

The research is presented in the first, theoretical part of the thesis. The second theme, which overtakes in the practical part of the thesis, is sensory design. A conceptual design for a house, created around the topic of memory and forgetting, hiding and searching, stimulating and calming, is presented at the end.

I started researching the theory of dementia while working in an architectural office, helping with a study for Perisutti Pflegezentrum, to plan a dementia facility as an addition to their existing care home. I recognized the complexity of this topic, the many restrictions and the need for better understanding of dementia patients as the target group, so I decided to base my master thesis around it. While reading about dementia, facilities for the elderly and interior design, my research wandered more towards sensory design and perception of a space with all senses.

Starting this master thesis, I never hoped to discover an architectural solution that would miraculously heal dementia. What I wanted to do is to reinvent the design strategies involving people with dementia and to identify myself with a person who perceives space much differently. While trying to explain the topic of my master's thesis, one often wonders about the direct correlation between architecture and dementia. What does architecture even have to do with anything? With a mindset, that a house is a house, and a roof is a roof, and nothing more, one probably cannot imagine that there is much to be discussed. However, once you define a specific target group with problems demanding special attention, you can see the possibilities of architectural design growing the more you learn about it.

There are architectural responses in forms of special buildings and facilities which attempt to compensate for the loss of orientation due to dementia. However, architecture can also address the elementary need

for the sense of safety and security for a greater self-assurance of its dweller. Besides, the environment can help relax through sensible use of light and light sources, a harmony of materials and colors, and the airiness of the layout. The same elements, used in an opposite way, can act stimulative, entertaining or perhaps agitating.

I was very surprised when I saw a multi-sensory therapy room in a care facility for the first time. There was a large disco ball hanging in the middle, the floor was covered in the same soft material as the whole wavy sitting landscape. A glittery curtain was hanging by the corner, and a large lava lamp standing in front of an abstract wallpaper. For a moment, I thought this is in fact a theme room, reminiscent of the 60s interiors or Verner Panton's fluid and vibrant "total environments". But then I learned that a patient is brought to this room as a part of his therapy, where he can completely let go of the restraints of the "social behaviour". Here, one may explore the sounds, the visual impulses and tactile sensations with the whole body, whether dancing and moving, or just laying about the soft surfaces all around the room.

There surely is a considerable attraction to such overload of sensory stimuli in a small and separated space, but it made me think - what if those elements used in the multisensory room, would instead be discreetly scattered around the home, as a part of daily life in everyday and subconscious use? Architectural features should play a larger role in the multisensory experience of space by utilizing their functions and recovering their value without the need for additional objects.

This is just one example of my thinking process resurfacing over again in the course of this master's thesis. I enjoyed the freedom of subtle experimentation, a new approach to architectural design liberated of some restrictions, in order to eliminate restrictions for others.

Forget Me Not

*The choice was once
your choosing,
before losing
became my loss.
I was there in
your forgetting -
until I was forgot.*

Leav Lang

PART 1: THEORY

FORGETTING AND REDISCOVERING

Analysis of the relationship between memory and space

When talking about forgetting, remembering and searching, one also talks about losing and getting lost. Those two meanings of “lost”, however similar, stand for two different situations: losing is about the familiar things disappearing, and getting lost about the unfamiliar appearing.

Moving in space means changing position of the body in relation to the environment. With each step one takes, the human body journeys into space. The distance walked is measured by a human body in strides, testing the composition of the ground and adapting the speed and step accordingly. Historically, many have discovered a relationship between walking and thinking. For example, the peripatetics, the students of Aristotle’s school of Peripatos in 335 BC, preferred debating while taking long walks. The thoughts were held to develop with each footfall on the way. The ancient Greek word for a human, *Anthropos*, means two legged. The definition for our being in ancient philosophy is, so to say, to walk on two legs, upright.

While walking about, the concepts of near and far constantly change. Approaching one element also means distancing from another. One appears, the other behind you disappears. The range in which the elements are visible varies from person to person, changes with a turn of the head and blink of an eye.

Walking is in fact a highly complex procedure we learned in childhood with more effort than one might imagine now. The risk of losing this ability in old age grows, as the muscles weaken. The range of

perception shrinks with the deteriorating eyesight, and the ability to subconsciously and effortlessly rely on your walking subsides. Aside from the danger of falling, for which one might need a support of a walking stick or a prosthesis, another risk appears: walking in the wrong direction, walking too far or walking without noticing and perceiving your surroundings. Getting lost. The equivalent of a walking stick as an aid to protect against falling, would be memory, which would normally prevent the loss of orientation in the complexity of the environment. The strides one measured before, the things one perceived, disappear from the memory - and upon a new inspection, they seem new and unfamiliar, in a wrong place, or missing. The experience of being a stranger in an environment is deeply discouraging. Simple routines or daily tasks might turn into irresolvable problems due to the sudden unfamiliarity. Daily routine can turn into an aimless wandering in search of home, while already in it.

Deterioration of memory therefore also means the decline of spatial orientation. The result might be a chronic feeling of homelessness in your own home. Maurice Merleau argues in his *Phenomenology of Perception*, that we cannot dissociate “being” as in existing or living, from “orientated being”. In this theory, spatial structure plays a defining role in human identity. The lack of it - as is the case with symptoms of dementia - can equal a fundamental identity loss, which really brings awareness to the importance of this topic.¹

DEMENTIA

Formal introduction to the topic

Dementia can be generally defined as a syndrome in which there is a deterioration in mental (= cognitive) performance. It affects memory, thinking, orientation, attention, language expression, comprehension, judgment, calculation and the ability to perform everyday activities. It is usually of a chronic or progressive nature, to an extent that is significantly larger than might be expected from normal aging process.

Commonly, impairment in emotional control, social behaviour or motivation accompany the development of dementia.

There are many reasons why a person might develop dementia. It can appear as a result of one of many diseases affecting the brain, such as Alzheimer's disease in 60-70% of the cases, or other injuries that primarily or secondarily damage the brain, such as stroke. Beside Alzheimer disease, there are many different forms of dementia that often even mix or co-exist, including vascular dementia, dementia with Lewy bodies and frontotemporal dementia.

Besides impairment in physical function, dementia is one of the main reasons for dependency and

disability among older people. It is estimated that around 50 million people suffer from dementia worldwide, with nearly 10 million new cases appearing annually - and this figure is set to triple by 2050. In other words, now it affects between 5% and 8% of the whole general population aged 60 and over. It is expected that the number of people with dementia will grow in the future, reaching 82 million in 2030 and even 152 million in 2050.¹

Besides, dementia secondarily affects many more people, the carers and families of the patients, in a physical, psychological, social and economic way. Care for a patient with dementia gets more demanding as the disease progresses, but requires full attention already in the early stages, when the symptoms can be most effectively decelerated. Sadly, due to a lack of awareness and understanding of dementia, patients are often a subject to stigmatization, getting a needed diagnosis and care later than it is considered desirable.

SIGNS AND SYMPTOMS

As it is often the case with diseases or aging, the progression of the disease and the symptoms are not uniform to all patients. Each person is affected in a different way, depending upon the combination of different factors, such as the impact of the disease, cognitive activity and general personality before becoming ill. However, the signs and symptoms are nowadays commonly understood in three stages:

- Early stage is often overlooked or confused with the normal aging process. Amongst the common symptoms are forgetfulness, losing track of time and disorientation in familiar places.
- Middle stage approaches when the signs and symptoms become clearer and more restricting. A wide range of symptoms include: forgetfulness of recent events and people's names, getting lost at home, increasing difficulties with communication, needing help with personal care, as well as behaviour changes such as wandering and repeated questioning.
- Late stage is related to near total dependence and inactivity, when the impairment in cognitive function is serious, and the physical deficiency becomes more obvious. For example: becoming unaware of the time and place, having difficulty recognizing friends and relatives, having an increasing need for assisted self-care, difficulties walking, as well as behaviour changes that tend to escalate and include aggression.²

TREATMENT AND CARE

Currently, there is no officially recognized treatment available, that would cure dementia or shift its progressive course. Dementia care rather focuses on support and improvements of the lives of dementia patients, their carers and families. Early diagnosis is vital for early and optimal management, and activation of the patient. Principal goal is to optimize physical health, cognition, activity and well-being of people with dementia, by also identifying and treating any accompanying physical problems, detecting and treating challenging behavioural symptoms and advanced psychological support.

Eliminating risk factors before the symptoms occur and maintaining a healthy lifestyle is, self-evidently, considered positive and also remains incorporated as part of dementia care. This concerns, on the physical side, regular exercise, avoiding harmful use of substances such as alcohol and smoking, maintaining a healthy diet, blood pressure, cholesterol and blood sugar levels. Additionally, aspects that regard a mental state, such as depression, low educational attainment, social isolation and cognitive inactivity are considered high risk factors. Therefore, stimulated social interactions and cognitive activities are commonly a part of the treatment program.³

² <https://www.who.int/news-room/fact-sheets/detail/dementia>

³ Ibid.

ARCHITECTURE

**and causes
for its
reconsideration**

Dementia requires a new approach to architecture. It takes us back to the basics, to very fundamental aspects in architecture that are important in general, but even more for patients with dementia. The elementary purpose of architecture, to provide a safe shelter. A sense of safety and security is crucial for self-assurance and a better quality of life. What is safe? Good visibility, clarity of the space that gives the sense of order and control of the situation. Size and light, among others, fit into this category. Furthermore, good orientation to help prevent the feeling of being lost, which is greatly dependent on the floor plan, but can also be achieved with the use of color, markings or “lighthouses”, distinct objects that help residents recognize spaces they are in. However, not all the focus should be given to visual sense - architecture can stimulate on many levels, and sensory stimuli helps trigger memories. Acoustics, tactility and smell all help in orientation in space, and not only that - they speak to the person, stimulate their senses and activate the thought process.

LIGHT

Simplified, visual perception is the ability to perceive our surroundings through the light that enters our eyes, by the brain that constructs the image. The image is produced by six areas within the visual cortex, which can be briefly explained as: area V1 receiving the signals from the eye; V2 sending and receiving signals from V3, V4 and V5; V3 concerns lines of specific orientations; V4 concerns colour and orientation; V5 for detection of external motion and V6 for self-motion. Dementia can affect the brain in the way that communications between those areas are impaired. This results in visual perception mistakes that could even be considered hallucinations.

To illustrate, a black flat screen television can be mistaken for a hole in the wall by a patient with dementia, and a paisley pattern on the floor rug could be perceived as a fish pond.¹

Sufficient lighting is needed for adequate transfer of visual signals. Besides, visual systems of older people tend to be less effective due to more lens absorption, smaller pupil area, as well as less detection cells in the retina, decrease in blood supply to the retina and a lower amount of neurons in the optic nerve and visual cortex, meaning that older

person requires much more light for the same visual response as a younger person. This is particularly important because the elderly are also prone to get hurt due to slips, trips and falls, so minimizing this danger is one of priorities of architecture planning.

In lighting design one must consider reflection and contrast; uniformity and reasonable quantity of light on ceiling and walls; avoiding sudden changes in light level; usage of lamps with good colour rendition; and keeping the glare low.

Common rooms in dementia facilities should also use “domestic” type of lighting for a better recognition of place, so that the residents do not have a feeling they live in a public place, an office or a hospital.

For the sake of a day-night cycle or circadian rhythm, morning and daytime light exposure is significant, as well as darkness at night. Systems such as adaptive circadian lighting can be used for when there is not enough natural daylight penetration available. Daylight should be used wherever possible, with shading devices for minimizing unwanted solar heat and darkening the room at night. For a healthy daylight exposure, access to the outdoor spaces is preferable.²

¹ McNair, in Feddersen/Lüdtke, p.106

² Ibid., p.107

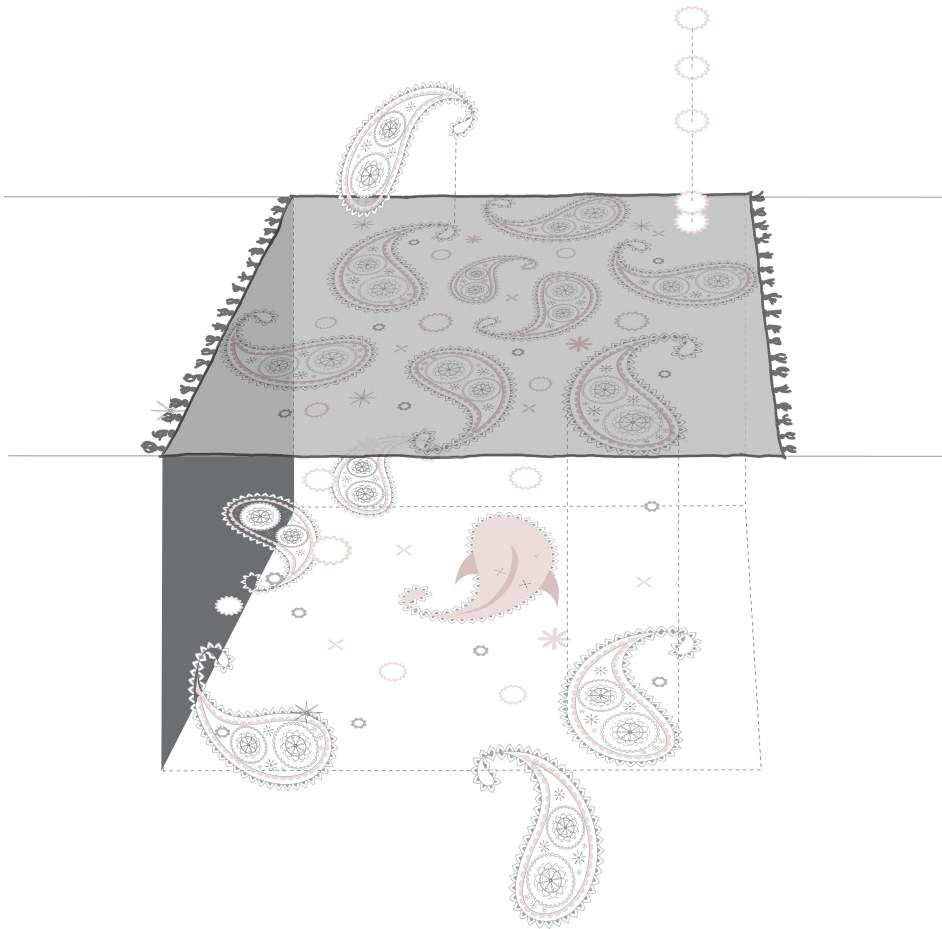


Fig.1: Paisley pattern on the floor rug could be perceived as a fish pond.

ACOUSTICS

Hearing, or auditory perception, is one of the traditional five senses, and as so, the acoustics also need to be taken into account when planning. Certain level of hearing loss is a common part of the aging process, however this does not mean by any means, that the elderly in general, as well as specifically patients with dementia, would have a better tolerance for noisy environments. Ability to hear normally is of vital importance for day-to-day life, for communication and understanding of the environment.

Hearing can be broken down into three main stages: detection, resolution and identification. Detection means noticing that there is sound; resolution means localization of the source of the sound, and the last step, identification, brings the understanding of the sound. This process from detection to identification, explained in a very simplified way, happens by the passing of the nerve impulses generated by the hearing mechanism to the brain. If the ability of the brain is compromised, as is the case with dementia, the last step, identification, is incomplete. That means that dementia patients can easily get confused by the sounds that are out of place, unexpected and overlapped. Therefore all unnecessary noise should be eliminated in order to keep the sound as clear as possible.¹

Constant confusion and misunderstanding can lead to people becoming withdrawn and isolated, which is something we specifically want to avoid in planning for dementia patients and naturally, every other person in general.

Dementia Services Development Centre at the

University of Stirling, UK, established five points to be taken into account:

- Keeping the noise sources at distance: spatial layout that is oriented away from the traffic and possible neighbourhood noises (factories, clubs, sport stadiums), but also internal noises (atria, corridors, circulation spaces, service such as laundry and garbage disposal)
- Structure and construction: the use of absorptive surfaces in larger spaces, acoustical separating walls between quiet and loud spaces, as well as floating floors can make a huge difference.
- Reverberation time: when a reflected sound reaches a listener more than 0.06 seconds after a direct sound, it is heard as an echo. This has to be taken into consideration especially in bigger spaces, and handled with absorptive materials, panels and linings.
- Improved visibility: people with difficulties hearing rely more on other senses, especially sight. For example, they might rely more on the lip read when listening to the person speaking, which can be supported by arranging the seating in a way that allows people to talk face to face.
- Assistive technologies: there are many different assistive technologies that can improve the acoustic environment, but also some that can cause anxiety for people that cannot understand what is happening, for example audible alarms or announcements over speakers.²

¹ R. Pollock in Feddersen/Lüdtke, 2014 p. 110-111

² Ibid, p. 112

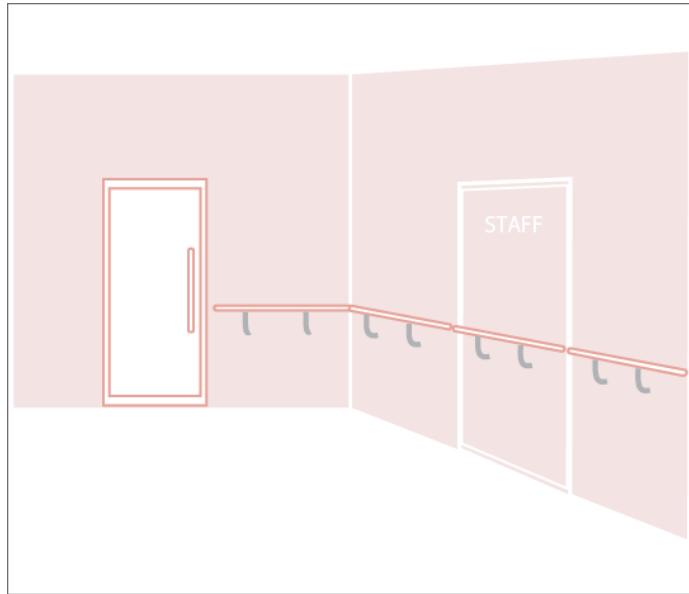


Fig.2: Handrail over the staff door.

ORIENTATION

In research into aging, the importance of orientation in space is always highlighted. Understanding a new surrounding and learning to live in an unfamiliar building demands a lot of effort at an older age. Simple, easily understood structures in which one can move around intuitively, can make the living much easier, especially when one cannot rely on memorizing the paths or locations of different spaces, as is the case with dementia. Fundamental reorientation is needed to perceive and experience a new environment, and finally learn to live in it and accept it as a home¹.

Complex changes of place and direction can be coped with by implementing reference points.

Pathway systems and visual axes within the building can help provide visual orientation. Windows should provide communication and comprehension of the environment².

The routes and corridors should also run in straight lines, while any circular paths needed can be managed with clear reference points or sensory attractions that can be well remembered³.

Another way to provide orientation or lead in one direction is the usage of handrails, which can in a way guide the movement, but also create barriers. For example, if the same handrail continues from the wall, across the (closed) door, and further on to the wall, the door will most likely stay unnoticed.⁴

¹ Metzger, 2018, loc.680

² Ibid., loc.1853

³ Marquardt, Viehweger, 2015, P. 117

⁴ Ibid, P.109

SPACE, COMFORT, SAFETY

The principles of assurance in a space

Eckhard Feddersen writes that for people with dementia, sensory experiences play a central role. "As people's cognitive faculties start to decline and the memory of recent events fades away, what remains are direct sensations"¹. This requires from us a step back into consideration about what is fundamental about the spaces we live in. When one thinks of his first memories of architecture as a child, one will most probably think of home. One might think of the smell of the wood in the rain, a shadow of the window blinds, frost flowers on the windows, the sound of the TV, the smell of candles, depending on when and where one grew up, these memories differ from person to person.

Sense of space is an objective phenomenon, perceived differently by everyone. For the most part however, we can agree on categorization such as a hut, a castle, a dining room...In similar ways we

distinguish between light and dark, pleasant and oppressive. Otto Friedrich Bollnow, a German philosopher and teacher, recognizes the house to be the centre of one's world, and the act of dwelling crucial for the sense of security, with the bed, hearth and a table being the heart of the house. Today, neurological investigations can confirm these findings, as well as determine which parts of the brain are responsible for different senses and how information is passed to other parts of the brain. However, much is unknown about how the brain compensates for deficits caused by diseases.²

It can be assumed that the gradual loss of senses in case of dementia or Alzheimer's disease is approximately an inverse process to development of senses in early childhood. Senses of taste and touch develop earlier than sight and hearing. While at first, newborns can only make out the light-dark

¹ Feddersen/ Lüdtkke, 2014, P.15

² Ibid., P.16

contrast, they have a much stronger sense of taste and smell, and it is known that especially the sense of smell can later in life bring out the most powerful childhood memories.¹ If we apply this process to the perception of space, the first experience begins with the soft blanket, the smell of warm milk and a lullaby. With more movement a child experiences the harder edge of the bed, and the visual focus grows from one object to the whole musical mobile dangling above its head, and later on the ceiling, the end of the room and the distances between things. The same goes for changes in height, perception of light and dark, recognition of a shadow or a reflection, recognition of different objects and their functions. Clearly, the importance of sight grows drastically as soon as it develops, because that is how we perceive brightness, movement, colours and shapes in the first place. To design a room that is perceived pleasant, feels safe and provides orientation, can therefore be translated into architecture with a clear composition, a room that can be perceived at a glance. Although there is a fine line between transparency and exposure - and that line is the feeling of safety and comfort. For example, floor to ceiling windows are generally attractive, open up the space and fill it with sunlight, but don't necessarily provide enough enclosure or security for private spaces.

Bollnow argues that we feel secure and comfortable in such environments where we feel the freedom to reside and move around at will.² Sure enough, the feeling of comfort depends on more than just architectural space

- it is highly determined by the state of mind a person is in, while the architecture, the decor, music, smell of flowers provide the ambiance. In an interview published in the book *Architecture and Dementia*, Volkwin Marg speaks about the loss of memory, where at first, the newer layers detach. At the very end, after losing the long-term memory as well, the inherited, primeval disposition remains in our subconsciousness. Even if one can not explain them or understand them, the feelings remain - the feeling of safety, warmth, emotion, calmness or agitation.³

Designing Options

"...// architecture that has clear and legible qualities, that is not controlling and leaves room for alternatives."⁴

To respect the wish for self-control is to design options, opportunities for people to decide themselves where they would like to be. Especially for people with dementia, but also generally any kind of housing that brings many different people under one roof, variety is very valuable. Options for community and privacy, for interior and exterior, for activities and rest need to be given. Especially in the event of dementia-connected anxiety attack or similar, a change of space can help a person come down on their own.

"We need to create spaces in which people can live how they have learned to live, in which memories can find a home and in which feelings find an echo."⁵ (*More on designing options in interior spaces is written in the chapter Interior; Style.*)

1 Ibid., P.16

2 Feddersen/ Lüttke, 2014, P.19

3 Ibid., P.25

4 Ibid., P.20

5 Ibid., P.20

A WAY TO THE FLOOR PLAN

Searching and finding

MORRIS MAZE TEST

As I searched for spatial perception problems in relation to dementia, I came across a report about a new virtual reality test that might detect early signs of dementia or Alzheimer's. It is a simulation of a maze, through which participants were asked to navigate in order to test the function of certain brain cells.

The so-called Morris Maze Test is usually used to research cognitive abilities of rodents. It is a large cylindrical container filled with water, with a platform sticking out of water. The rat must reach the platform to avoid drowning. In the next step, the water level is higher than the platform, and the water is colored, making the platform visually disappear. The rat is placed into the water again, and this time it can only find the platform by memory. This is repeated from different starting points. As a rat gradually learns where the platform is, it swims directly to it. However, previous work has shown that rats bred to develop symptoms that model Alzheimer's disease perform worse at the maze.¹

The researchers at Gladstone Institutes in San Francisco developed a Morris Maze Test for

humans, which uses a driving simulator instead of a water tank, with a steering wheel and a gas pedal connected to a monitor. Like the rat test before the water is raised, participants are first trained to drive to a specific location, marked by a lavender box, in a virtual countryside, which includes landmarks such as mountains, lakes, and the sun.

After the volunteers complete their training, the lavender box disappears. In its place, players are told, is a "buried treasure." Users can't see the treasure, but when they drive over it a notice pops up, letting them know they've hit the spot.

The researchers tested their virtual Morris Maze on people with mild cognitive impairments due to Alzheimer's, which may manifest in the form of memory and cognition problems. Then they compared the results with the genetically modified mice, as well with healthy humans and mice.

Participants with memory problems had similar difficulties finding the treasure, and could not locate it only based on the surroundings.

¹ <https://www.sciencemag.org/news/2016/01/virtual-landscape-makes-you-feel-rat-maze-could-aid-alzheimer-s-research#>

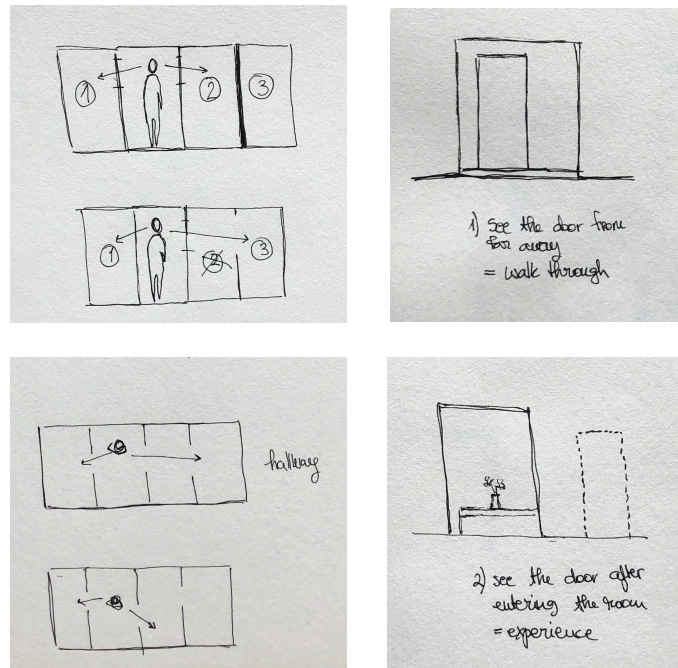


Fig.3: Sketches, room sequences.

WAYFINDING: SIGHT

Wayfinding consists of three key components: knowing where you are, how to get somewhere (having a “mental map”), and recognizing when you have arrived.¹

Sociologist John Zeisel, Ph.D. explains, that the concept of wayfinding for people with dementia is mostly based on firstly knowing the place and recognizing it.

People with dementia know where they are when they're there; they only know where they are going if they see the destination; and they realize where they were going when they arrive. The in-betweens — the connections between destinations — are lost on them.” John Zeisel, Ph.D.²

Which correlates well with the Morris Maze Test - the visibility of the destination is crucial for reaching it. The building layout should minimize wayfinding choices to reduce confusion and disorientation. At each decision-making point, such as hallway junctions, there should be orienting landmarks to help with wayfinding. Provide orienting views through spaces and between destinations. Likewise, provide visual cues for important activities, such as eating or toileting. Glass-doored kitchen cabinets stocked with healthy snacks could cue a resident to eat. Being able to see a toilet from the resident's bed or near an activity space (while maintaining privacy, of course) might minimize incontinence issues.

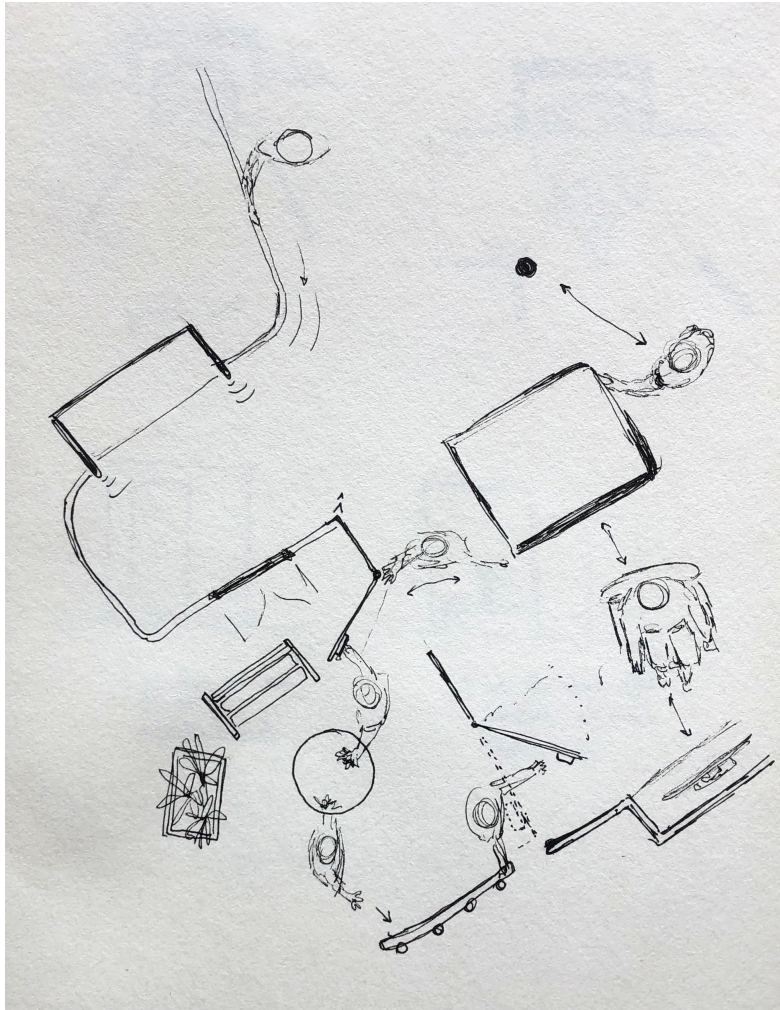


Fig.4: Sketch, wayfinding by touch.

WAYFINDING: TOUCH

Other senses can assist with wayfinding and orientation. Architectural elements and furniture can replace the regular handrail and offer support during movement between rooms and within a room. A person with impaired vision or physical ability will never cross a large empty room in the middle - but rather move towards a side wall, search for a contact and support on the way to the other end. Setting up stable elements in short distances between them can encourage movement from element to element, since the distance walked without support is short enough, and therefore attainable.¹

Instead of, or beside, the visual "landmarks" or "lighthouses", furniture and walls can include different clues about the location or the development of the layout. For example, differently shaped grips, knobs or holes on the surfaces one touches or uses as a support while walking, can signal a change in direction, function etc. Different textures and materials of interior elements add to the experience of the room. More about multi-sensory design follows on pages 72-93.

BARRIER-FREE ACCESS

General rules for building for people with disabilities

Beside the points already listed, architecture for elderly must also follow more fundamental guidelines for barrier free access. One does not go about planning for the elderly, without considering barrier-free access as a basis. To enable equal participation of people with disabilities in society, a "Federal Disability Equality Act" (BGStG - Behindertengleichstellungsgesetz) has been in effect in Austria since 2006. Facilities and environments in general are barrier-free if they are accessible and usable for people with disabilities in a general manner without particular difficulty and/or outside help. The requirements for barrier-free construction are defined and summarized in ÖNORMEN¹. An ÖNORM standard is a national standard published by the Austrian Standards International². Specifically, ÖNORM B 1600, ÖNORM B 1601, ÖNORM B 1602, and ÖNORM B 1603. Further on, OIB Guideline 4, Guideline on Safety of Use and Accessibility is to be taken into account beside or instead of the ÖNORMEN, which varies depending on the building regulations of individual federal states. Summarized, spatial requirements and

distances between objects generally need to be larger for people with disabilities and also those with only a temporary physical impairment. Rules apply, including: The height of all operating devices, such as switches, buttons, ATMs, emergency call switches, toilet flushing etc, should be approximately 85 cm above the floor, with lateral distance to the adjacent wall at least 50 cm away; according to the 2-senses principle, both optical and acoustic information should be available for people with visual impairment, as well as tactile measures; the freely available area of movement must be at least 150 cm wide and deep, in accordance to the minimum required space for wheelchair users³. Land Steiermark provides guidelines for barrier-free building in the province of Styria in Austria. Among others, they provide a summarized collection of guidelines, norms and structural requirements especially chosen for buildings with assisted living for senior citizens, and a leaflet on barrier-free building which refers to the ÖNORM B 1600, accompanied by comprehensive sketches and diagrams.⁴ Here, I will only list a selection of the guidelines.

1 https://www.oesterreich.gv.at/themen/bauen_wohnen_und_umwelt/bauen/1/Seite.1270300.html

2 <https://www.austrian-standards.at/en/infopedia-topic-center/infopedia-articles/oenorm/>

3 https://www.oesterreich.gv.at/themen/bauen_wohnen_und_umwelt/bauen/1/Seite.1270100.html

4 <https://www.technik.steiermark.at/cms/beitrag/11507965/58814178/>

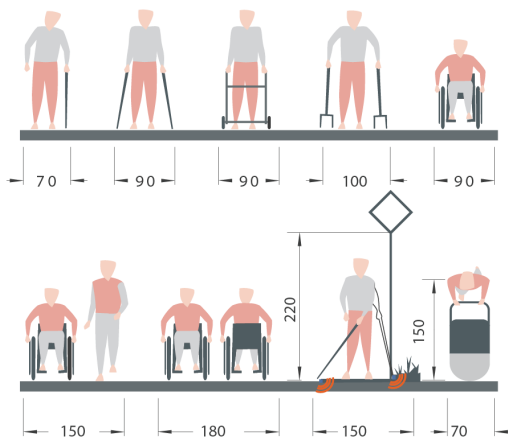


Fig.5: movement widths

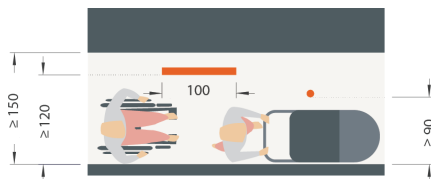


Fig.6: Obstacles on pathway



Fig.7: Längsgefälle max. 6%

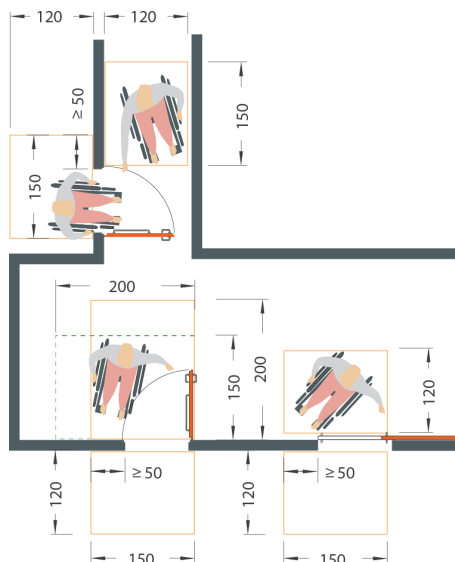


Fig.8: space requirements for wheelchair users

Some of the most important regulations, in my opinion, concern the width of the passageways, spatial requirements for bathrooms and other distances one should pay special attention to when planning for the elderly, for wheelchair users and impaired or disabled people in general:

- **Movement widths** and space requirements for mobility-impaired people: determine the minimum required width and lengths of the door, the hallways, pathways etc. Understanding the needed space for turns and other movements of people in a wheelchair for example, can help lead the design process.
- **Path width**: min. 150 cm; in case of local point-obstacles on the path, the width should not be less than 90 cm; If those obstacles are up to 1 m long, then the width of the remaining path should be minimum 120 cm.
- **Ramps** can have a maximum gradient of 6%, with cross-gradient preferably 0%, or if not possible, max. 2%, because it hinders the wheelchair users a lot.⁵
- **Ramps** need handrails and wheel stops on both sides; The handrails are to be continued for at least 30 cm after and before the ramp. At the beginning and the end of the ramp, a horizontal maneuvering free space of minimum 1,20 meter is required. Every 10 meters of the ramp, and at every direction change of more than 45 degrees, an intermediate landing of 1,20 meter is required, which cannot exceed the gradient of 2%. The width of the ramp should also be minimum 1,20 meter, with handrails not taking up more than 10 centimeters on each side. Any change in gradient, the beginning and the end of the ramp, are to be well marked and distinguishable from the rest of the floor by contrasting color.⁶
- For barrier-free access, there should be no **steps, stairs or level changes**. If they cannot be avoided, they must be properly marked with a color, a sign, and have a handrail. This goes for pathways, entranceways and any other public spaces. In case the main entrance cannot be executed step-less, a max. 3 centimeter level difference is allowed on one side only.
- **The flooring** should not be slippery and the tiling should be even - rough paving with noticeable joints between the tiles, tiles with a profile as well as three dimensional textures are not suitable. Flooring with a good grip is especially important for ramps.
- **The door** opening width should be minimum 80 centimeters, ideally 90 cm; In case of sliding door or pocket door, this opening width is the actual free space between one side of the door frame and the door leaf in an open position. However, the single

⁵ Koch-Schmuckerschlag, Kalamidas, 2006

⁶ OIB-Richtlinie 4, 2.2.1 and 2.2.2. OIB-330.4-020/15

door leaf of hung or swing doors should not be wider than 100 centimeters to avoid handling difficulties. For easier handling, a horizontal grip should be provided. The maneuvering space on both sides of the door should be at least 150 cm x 120 cm (150 centimeters wide and 120 centimeters deep). On the side on which the swing door opens, the required space is 200 cm x 150 cm, lengthwise or crosswise. To reach the handle, a wheelchair user needs to approach the door slightly sideways, for which a distance of at least 50 cm between the handle and another obstacle is required. The sliding doors require a free space of 150 cm x 120 cm on both sides, with long, vertical grips.

The connecting distances between rooms should be kept short and offer plenty of resting possibilities (bench). A grouping of seating should also offer a space for a wheelchair.

Another thing we usually would not consider is the height of the sight area of somebody who is always in a sitting position or laying down, which should be taken into account when planning windows, balcony balustrades etc.

In buildings for assisted living, a barrier-free elevator is required if the building has two and more floors above ground.¹

Buildings for assisted living require minimum two barrier-free parking spots, and more if needed, following the regular parking spot calculation by Styrian building law (Stmk.BauG, §89).²

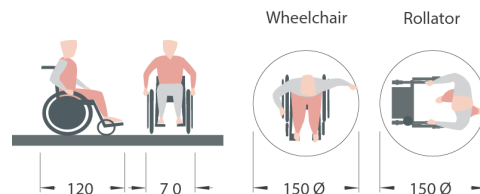


Fig.9: Dimensions
Standard wheelchair min.space requirement circle with Ø 150 cm

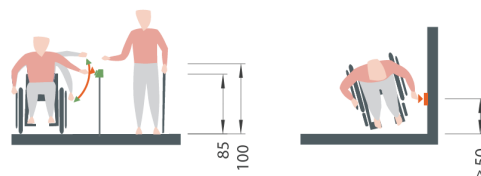


Fig.10:
Operating height for all in general 85 - 100 cm



Fig.11: sight range 120 - 160 cm



Fig.12: Seat heights

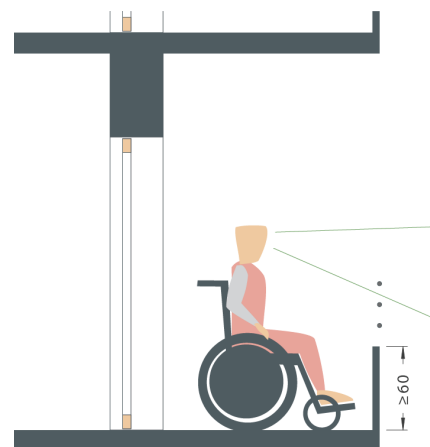


Fig.13: height of the sight area

¹ OIB RL 4, Pkt. 2.3

² Technisches Merkblatt - Betreutes Wohnen, Land Steiermark

INTERVIEWS

PERISUTTI CARE HOME:
HERMINE FÜRLI, MSC

ALBERT-SCHWEITZER KLINIK
GRAZ: EVA RAMSENTHALER,
BSC

UNIV. PROF. ARCHITECT
DI. DR. TECH. HANSJÖRG
TSCHOM

INTERVIEW

Hermine Fürli
MSc;
Perisutti Pflegezentrum,
Eibiswald, Austria

Interview with DPGKP Hermine Fürli, MSc,
Nursing Director in Perisutti Pflegezentrum
(Care Home)
MSc for Management in Healthcare.

The first time I met Hermine Fürli was during a site visit at my job apprenticeship. Perisutti Care Centre was looking for a new estate where they could establish a Competence Centre for Dementia. This is also where I first started thinking about architecture specialized for patients with dementia, and where the initial idea for my master thesis started developing.

This time I met Hermine Fürli in her office of Perisutti care home, where she explained to me more about the behaviour of people with dementia, her observations in the care home and how architecture can help or address some issues in this regard.

To start with, I asked her to describe an ideal care centre for residents with dementia. She stated that first of all, it is important, they stay in touch with their relatives. The closeness to their familiar living environment is therefore crucial, so that they don't feel tossed away and distanced. It helps them to acclimate to their new home without bigger trauma. It is important they have the feeling of safety in their

daily lives. If they find themselves in the environment they cannot relate to, it only causes additional stress. In the case of people used to living in the city, a move to a remote countryside or village would feel like isolation. Not only the people, but also the language, the dialect changes from place to place in Austria, and an additional language barrier is anything but helpful as the illness progresses. Considering the design itself, she talks about sensing or perception (Wahrnehmung). Everything that can bother the resident should be reduced, there should not be many reminders of the change. Each resident has a different idea of a home, so the possibility of individual design should be taken into account. It is mostly a quest for interior design, but here's where architecture should be flexible enough to give an opportunity for versatile room configurations and styles. Thinking of different shared spaces or lounge areas already in the planning process, either open or enclosed, with different atmospheres and interior decor, from citizenly to farmhouse-style, gives the residents a possibility to choose the space they feel comfortable in.



Fig.14: "Cottage in the Alps" style room in Perisutti.



Fig.15: Photo-tapestry with added real objects.

The question of autonomy and freedom of the patients can only be discussed individually, since every patient requires a different level of care and approach. Some show a high urge to walk, others prefer to stay at one place. For the walkers, but also for others, well designed exterior spaces are significant. The urge to walk is sometimes of the physical nature, but in some cases also the search for something familiar, for home. However this is not easy to interpret, since usually the dementia patients wouldn't be able to explain their actions themselves. Ms. Fürli shows me their exterior garden, where a path leads in a circle past some benches, flowers and a statue. She mentions that they need to rebuild it because of the slightly uneven surface which is very tiresome, especially for wheelchair users.

She also experimented with the idea of a large-scale photo-tapestry. To bring their home into their new rooms, a picture of the interior can be taken and put up on a wall. She shows me one of many thematized rooms in the care home, with an alpine house interior. There is a fireplace, a typical wooden table with chairs and a sheepskin rug. One of the walls is completely covered with a tapestry of authentic alpine cottage interior, creating an illusion of three-dimensional space. On the hooks of that tapestry hang some real objects, such as a cooking pot and a broom, to break the two-dimensionality and invite the residents to interact with the space. One can attempt it, but it is still an illusion.



Fig.16: A resting "niche" near the main room.

Segregation or integration?

We continue our conversation about an ideal home for dementia patients, and I wonder if it is better to separate it from a general elderly home, since they, at Perisutti, were initially looking for a separate housing estate. The answer basically depends on the stage of Dementia, how far the person's illness has progressed. Up to some point in the earlier stages, an integrative approach is very important. Integration with other people, a lot of stimulation and activity can slow down the progress of the illness at first, which means that living with others is desirable. However, once it starts causing confusion and once the illness has progressed to the point that the patient finds it difficult to socialize with non-patients, feels excluded or unable to learn from them, a segregative approach would be sensible/reasonable, since it would eliminate unnecessary frustration. But also, in the middle stage, a certain feeling of aimlessness appears, and not only do dementia patients need more attention, but also do non-patients have the right to enjoy their day to day life without stress or frustrating events in relation to patients with later stages of dementia.

At this point, a patient with dementia can be a very troublesome roommate or flatmate, so a separation is for the wellbeing and protection of both parties.

She mentions the 3 - world - living model by Christoph Held (Das Drei-Welten-Modell). In the third stage of dementia, when the patients mostly only lie on beds and can hardly communicate anymore, all outer stimulations are to be minimized, so that the patients are not irritated by them. Contrarily are patients in the middle stage of dementia constantly on the move, searching, unsettled and tend to shift their attention from one activity to the other every 15 minutes or so. That's why she thinks the focus of spatial design should be on "nischen" / niches or alcoves, differently designed smaller spaces or room parts, where a patient can spend some time and feels like he is in a different environment. For example, a crafty niche with hand tools, another with household items, a sewing room...Generally things that patients know from their everyday lives in the past. But we are not talking about whole rooms, but about niches, arranged around the main space so that the staff can easily oversee the patients.

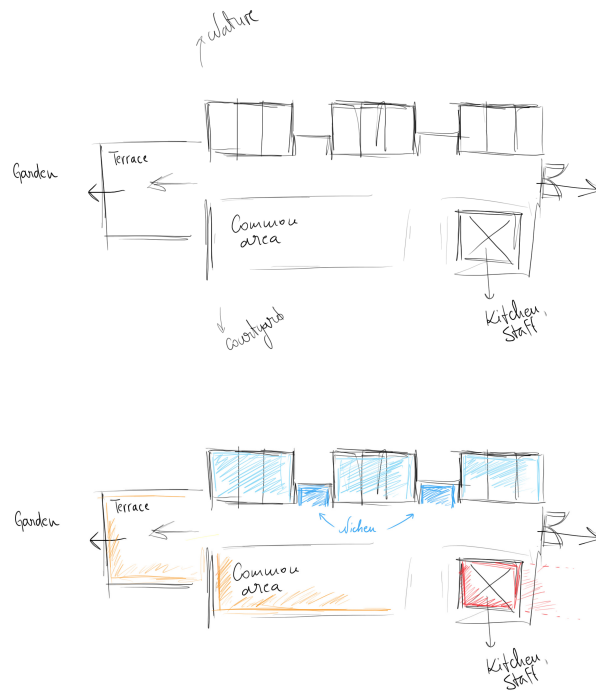


Fig.17: Schematic floor plans of dementia station in Perisutti Pflegezentrum.

They have made an observation that the patients in the middle stage of dementia do not tend to spend much time in their private rooms. Among others, this also has to do with the fact that they need help with everyday activities and are physically constrained. The number of patients therefore depends on the number of care personnel, which can, naturally, look after more patients simultaneously if they are together instead of in separate rooms. She claims that the groups should not exceed 12 patients. That way, a central common area with niches can be kept small enough for the staff to be able to keep the whole area in sight, and secondly, the patients do not have to go too far to find their private rooms. Another aspect concerning this is that some patients might want to stay and rest in their rooms with the door open, and still have a sight connection with the common area for the feeling of safety - that way, also the personnel can keep an eye on them. This would be much

more difficult if many rooms were arranged down a long hall for example. Further on, a proximity to the common area also means an extension of the living habitat from private to shared rooms.

Danger of falling is one of the biggest daily concerns, and that is also where architecture is important - the sufficient lighting, no unexpected steps, bright flooring so that any items on the floor can be seen and avoided right away.

I wanted to know if a ramp is actually a good solution. I can imagine that, for example, a partially sighted person could have just as many problems with a ramp, as with stairs, especially concerning depth of field. Ms. Fürli suggests that the ideal option would be to keep everything on one level, but if this is not possible, a ramp is definitely better than an elevator or stairs.

Another question that really occupied me was whether windows should be oriented to the outside so that the patients can observe what is happening on the street, people walking around, or parking place, so they can see who is arriving and leaving, or if that would be too irritating for them and would make them want to go outside, leave the care home. Ms. F rli answered that this is once again dependent on the stage of dementia. In the first world by Christoph Held, there should still be some distractions, some stimuli so that the patients can still participate in the community life. But in the middle stage, when the will of wandering is very strong, it certainly stimulates the patients and pulls them outside, because the greater the view, the bigger the selection of where they can go, and the easier it is for them to get an idea to move and be distracted from their daily activities. However windows to the terrace or the garden should definitely be as big as possible, because natural light and sun make for a very positive atmosphere. She would by all means orientate all the terraces and balconies to the courtyard in the middle of the building complex.

Regarding the functions, she mentions a hairdresser and beauty salon, coffee shop and other different public functions that would bring a so-called village or city character into the care home. A therapy room that can be flexibly turned into a ballroom, sport studio or seminar room for presentations and even movie screenings. We talk about how such half-public functions could take place on the ground floor, with arcades that would bring some of the street character to the inside. Even small private stores could be an attractive addition, bringing in other visitors and help the patients in the first stage to socialize more and not experience a care home so much as a closed institution.

I propose a pool or a spa, for some relaxation and luxury for patients, but she is skeptical about it. Even if we completely ignore the price of such establishments, a pool would not be such a great idea from the hygienic point of view. While it sure would be positive for physical therapy, especially for patients who were used to going swimming or to the spa, different medical conditions, such as urinary incontinence, would make it hard for the staff to maintain the space clean - not to even mention slippery floor and drowning hazard.

Ms F rli tells me that she visited some elderly residences in Finland last year. To her surprise, they all had saunas. But after all, a sauna is a part of everyday life for the Finnish, that is why it only makes sense to include it into the elderly home. However in Austria, that is not the case. We must always consider the regional character, culture and habits, when designing such institutions.



Fig.18: The hairdresser salon in Perisutti Pflegezentrum.



Fig.19: The care bathroom in Perisutti Pflegezentrum.

Daily schedule

To better understand patients with dementia, and to be able to develop a floor plan or an idea, I also wanted to know how their daily life is structured. What activities happen when and where?

Ms. FÜRli gave me a better insight into the day on the station for patients with middle stage of dementia: Firstly, the morning care routine is carried out in private rooms and bathrooms. Then all patients in the group have breakfast together in the common area. The time before noon is usually filled with body care, physical routines, walking exercises. For example, staff can take a patient for a short walk around the care home or outside, while some physical therapy must be carried out in therapy rooms. So mornings are usually dedicated to basic body care. The staff also need to write reports in their offices. The patients also get a small meal or a snack between breakfast and lunch. After lunch in the common area, they have a midday rest. Some patients take a nap in the common area, in one of the niches, or in their private rooms. A silent space dedicated to rest in the common area is therefore very important. Afterwards comes time

for afternoon coffee and “activation”. Each day another activity is planned, for example talking in a circle, games with balls, creative activities such as painting or handicraft work, sometimes there is emphasis on music... So in the morning it is time for body care, and in the afternoon for mind and soul care. For afternoon activities, a designated space would be welcome, because now they either have to rearrange the common space or move to another part of the building to a bigger multi-functional room.

The Demand

The demand for a place in dementia care station is exponentially on the rise, and more and more patients in the middle stage are looking for care facilities. She would even say that approximately 80% of all inquiries in Perisutti home for the elderly are for patients with dementia. That goes for all the stages, even the first one. The problem is that even though people in the early stages of dementia are physically still able to take care of many things, cognitively they are not capable of living on their own. Naturally, this is also a question of money, and that is also why many stay at home for as long as it is possible, along with fear of moving and being institutionalized. It would be necessary to establish day centres for patients with dementia who still live at home, but need daily care and social contacts. That way they could come into contact with the care home before they would actually need a room in it, get used to it, so the change would not be so sudden and stressful.

While we talked, she also answered a phone call. A family member of a patient with dementia called, and asked for a free space, because the patient is always walking away from home and getting lost. The family decided that it is finally time to find him or her a place in the care facility. Sadly, Perisutti is full and they do not have enough staff to accommodate a patient who would need constant supervision.

INTERVIEW

Eva Ramsenthaler
BSc;
Albert-Schweitzer Klinik,
Graz

Albert Schweitzer Clinic is a competence centre for the care and treatment of patients with chronic and acute illnesses with immediate proximity to the Graz city center. One of its departments is Memory Clinic, with nursing and care activities for individuals suffering from dementia, as well as for their persons of trust.¹

Memory Clinic

The Memory Clinic is situated on the ground floor of the building that came as an addition to the previously existing hospital complex in years 2003-2006, as a result of architectural competition, designed by univ. prof. architect di. dr. tech. Hansjörg Tschom.

The hospital rooms are oriented to the west, to the green and quiet inner area with lots of trees.

The dementia station on the ground floor is designed as a single large, transparent area in which the rooms and the functional boxes are placed. That results in an open, walkable space which offers patients many walking opportunities indoors as well as outdoors in the garden. The window bands of the room zones are laid out in such a way that the patients have a view of the green area of the courtyard even when lying down. This is of particular importance because some of the patients are no longer able to get out of bed. The entrance and general area is connected in the foyer, from the courtyard side entrance there is a view of the street area.²

The dementia garden is integrated into the green and communication area on the west side of the building, but separated by a fence for security reasons.

¹ source: <https://ggz.graz.at/de/Allgemeines/Geriatric-Health-Centres-of-the-City-of-Graz>

² source: <http://www.tschom.com/index.php/geriatisches-krankenhaus-albert-schweitzerklinik-ii-graz>

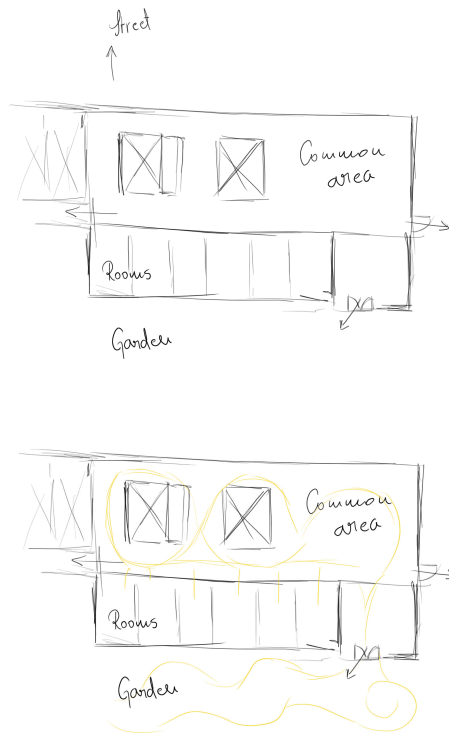


Fig.20: Schematic floor plans of the Memory Clinic as sketched by the architect.

Interview with Eva Ramsenthaler, BSc,
Head of department of Memory Clinic

I met Eva Ramsenthaler behind a large aisle, similar to a reception desk. However this aisle was not placed by the entrance, but rather at the back and in the middle of the spacious room, where patients were sitting around, chatting by the table or resting on a sofa. It surprised me how open the space was, and most of all how close and easily accessible the entrance door was from this common area. The staff aisle is one of the so called functional boxes, sitting in the middle of the room, allowing free passing on all sides, and also promotes communication. For a talk, we moved to one of the smaller offices, where staff can go when they need some peace and quiet, or privacy for one on one talks with the patients.

I ask Miss Ramsenthaler to comment on the architecture regarding dementia, and tell me about any general thoughts concerning interiors, colors and the room organization.

Bright spaces with a lot of natural light and bright

colors are definitely important for the overall positive atmosphere they are maintaining on the Memory clinic. Besides, it helps for better visibility of the space, which is especially important for people with visual impairment. This also goes for the floor - dark floor can be very confusing for patients with dementia. Dark color can be used in areas where it is not necessarily wanted for the patients to go. Also the entrance door should be partly disguised instead of visually highlighted, so that the patients are not drawn to it. The door to Memory Clinic is made of glass, there is a curtain next to it and also some decorative stickers and pictures on it, just like on any windows and walls around. That way it does not stand out, because the whole glass wall looks the same.

She also mentions that uniform furnishing in private rooms, community area and ambulances help connect the spaces. For example, a chair that they have in the room, is the same as the chair they sit on during lunch, and the same as the chair they sit on during medical examination, which eliminates some fear of doctors and gives the feeling that the



Fig.21: Garden of the Memory Clinic.© GGZ

whole clinic is their home, not just the private room. However they do implement many characteristic elements around the clinic that remind them of everyday life in the past, such as pictures of cottages, a wheat field or sunflowers. Also pictures of faces are very important, especially on the doors to private rooms.

Thanks to the staff isle they can be in constant contact with the patients, even if they do not directly sit in the room with them, when they are filling out reports or working on the computer. This line-of-sight contact is significant for open communication and relationship between the residents and staff, because the residents do not have to think twice before asking a question or get up and knock on the doctor's door. The medical care should not stand in the foreground, she says.

Another thing that comes to mind regarding architecture is noise reduction. Normally, the noises from outside are very disturbing for the residents. While there should be some areas or rooms with more stimulation and impulses, there also need to

be completely calm and quiet areas for rest and withdrawal.

Memory Clinic houses 22 residents in single or double rooms, with mostly moderate or middle stage of dementia, and a lot of urge for walking. That is why a lot of space for movement is required, and rather smaller private areas for rest. From the common room they can access the "Garden of Senses", with a lot of greenery and trees, vegetable garden, winding path and different seating possibilities. Some of their patients still have a lot of vitality and react well to the stimulating environments, so the staff even takes them shopping in the mall, to the farmers market, to the church on Sundays...By arrangement with the patient, his persons of trust and their doctor, a disorientation system can be used. A patient can carry a GPS device that reports his location to the caregivers. In case he/she wanders too far, the device alarms the caregiver, and he can check with the patient whether everything is okay, and if needed, track the patient to bring him back.

Miss Ramsenthaler also tells me about other afternoon activities they prepare for their residents: games with balls, dancing evenings, Mikado tournaments, arts and crafts. The daily schedule is similar to the one in Perissutti, following the scheme of Ergotherapy.

Occupational therapy is a treatment method that focuses on maintaining and using personal abilities necessary for casual daily work and the recreational activities of people of all ages with any type of handicap (physical, sensorial, mental or social) by sensible engagement in activities. It supports participation of an individual in daily life to a maximum possible extent while fully respecting their personality and abilities¹.

She also assures me that there is a large demand for more care facilities for patients with dementia. People try to stay at home for as long as this is possible, but that is by no means the best solution. In early stages, stimulation and cognitive activity is crucial for a slower progression of the disease. That means that as soon as a person notices signs, or is diagnosed with dementia, they should start doing more, working on their cognitive abilities, be among people and talk more. But what really happens is that they only get more isolated. If they live with their family - which is nowadays not the case as often as before, when extended families were way more common - they might still maintain enough social contact, but active care and activity would be desirable nevertheless. Not to mention that in a city most elderly live alone or in couples, because of the size and the prices of city apartments - to bring more generations under one roof, you would probably need a house - and a house is a luxury in a city.

So to tackle this problematic, one of the units of Geriatric Health Centres of the City of Graz is also a Memory Day-Care Centre Rosenheim, situated on the ground floor of The Residential Nursing Home Aigner Rollett on the Rosenhain. Its services are addressed to elderly inhabitants of Graz who have been diagnosed as suffering from dementia. Through this service, family members caring for such patients are intended to be relieved of their burden. In addition, it aims at postponing in-patient care for dementia patients. The centre is open for daily visitors and follows the concept by psycho-biographic care model developed by Prof. Erwin Böhm. Visitors with dementia can engage in various activities, with daily meals and medical support included.²

¹ <https://www.canadian.cz/en/specialization/ergotherapy>

² <https://ggz.graz.at/de/Allgemeines/Geriatric-Health-Centres-of-the-City-of-Graz>

INTERVIEW

Hansjörg Tschom
Univ.-Prof.i.R. Dipl.-Ing.
Dr.techn. Architekt.

I talked to univ. Prof. Hansjörg Tschom, who, besides many other residential projects, homes for the elderly and similar facilities, also made a concept for the Memory Clinic in Albert Schweitzer Clinic in Graz. I wanted to learn about his approach to planning of such facilities and most important aspects of architectural design out of his experiences.

We started the conversation with a question, which is the greatest challenge for an architect and which aspects should be considered in particular when planning a facility for the elderly?

The answer to this question begins at the very basics of architecture. As is the case with every single building, especially in housing, but also others, one firstly needs to know about the needs, the requirements and nature of men. These needs or requirements can be divided into two groups: the rational ones, which are always changing, depending on the society formation and structure; and the pre-rational ones. Human behaviors that are anchored in the human tribe, genetically pre-programmed so to say, in their basis always stay the same. Understanding these basic behavioral patterns is crucial, and should have a greater presence in the teaching programs of

architectural universities.

To illustrate this idea, he drew a simple sketch of a square room, with the door on one side and two windows on the opposite side. In the room, he placed three tables: one in each bottom corner, and one in the middle.

Imagine walking into an empty restaurant room like that. Which chair would you choose to sit on? I, without much contemplation, point on the chair on the right side near the window and with the wall behind it. Prof. Tschom says, exactly, I suppose you are right-handed? Yes.

He used the same example with about sixty architects on a Congress in Munich, and almost all chose either the same chair as me or the one on the opposite, left side of the room - and it turned out they were mostly left-handed. It is a pure observation, but it tells us about the nature of people.

Then he pointed to the chair in the middle of the room:

"If the room is empty, and you choose to sit here, I can only give you an address of a good psychotherapist in Graz!"

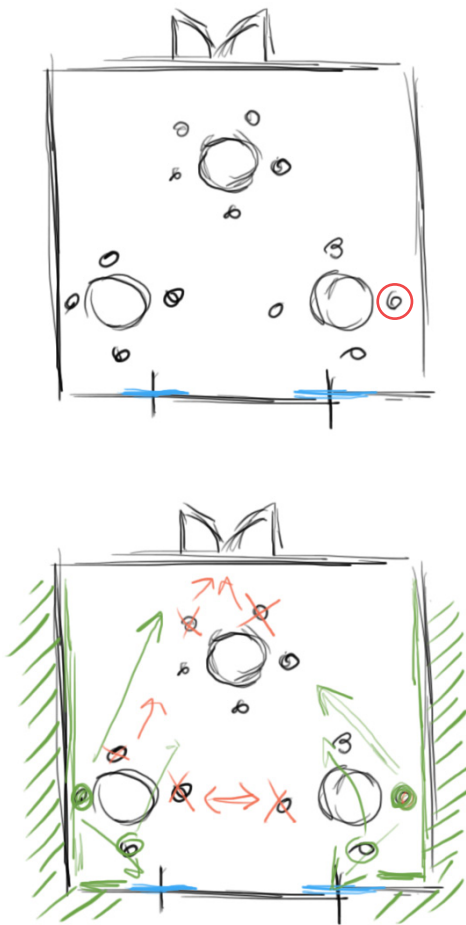


Fig.22: A sketch of a restaurant.

We both laugh at that and I imagine how uncomfortable it would feel like sitting in the middle of a big, empty room like that.

Let's think about why most people would choose the chair in front of the wall. Firstly, from that chair, one has the best overview of the room. There is nobody behind you, you are secured by the wall. On the left, you can observe what is happening outside. On the right, you have a direct view of the entrance door, so you know who is coming. In case this would not be a restaurant, but some other space in the older times, when danger was behind every corner, and an enemy might come through that door, then you could defend yourself right away with your better hand.

This need of safety is still anchored in our behavior, and sitting with the wall behind us and a view in front of us gives us the feeling of control.

Another example would be the city Dubrovnik. Prof. Tschom did an urbanistic survey in Dubrovnik with the students of University in Zagreb. Urban planning principles from the year 1222 included a rule that each planned street needs to have a good insight into who is coming by every 60 meters. For example, if there is a curve in the street, one can still see approximately 60 meters ahead. The 60 meters, just like other spatial laws and planning laws of the Middle Ages are not based on research. They are based on observation. 60 meters you can still see pretty well who comes - a friend or an enemy.

Such a system also evokes curiosity and man is geared toward curiosity - a monotone structure is boring. Dubrovnik is the only Middle-Age city built on this grid, which is very clean with light displacements or shifts. Meaning, the street continues slightly displaced after the crossing. It is a great observation of the spatial principles, or that people want protection.

At the time as he was holding lectures for the course Spatial Principles, he also won a competition for residential housing with balcony access ("Laubengang") and Maisonette apartments. Between the balcony hallway and the apartment, he added a small garden. This garden acts as a semi-private buffer zone between public and private.

The reason for it was to bring a better feeling of security to the residents. Prof. Tschom mentioned a study which could prove that in multi-storey buildings, up to three times more residents suffer from psychosomatic disorders, one of the reasons supposedly also being the height of the building. A private property of a family house is usually surrounded by a fence in Europe, while in America there might be no fence, but at least a lawn and a front porch. People camping on the beach set up large stones in a circle around them. We like to define our area, our territory, this is simply the archetypal behaviour of people.

The jury of the competition questioned this idea at first, since it is not the most economical approach, but after the explanation, that this is his way of bringing a family house principle into a multi-storey building, the idea was very well received. Even so, that such garden with the garden door before the entrance finally had to be planned for all apartments in the building.

Basically, architects must understand and answer to the most basic human needs.

He continues to illustrate another example of gaining a better understanding- sometimes he did architectural workshops with children in primary school. When asking about favourite materials, glass and metal came up very often, but also thick (brick) walls. There are some principles in architecture which are very clear to us without an explanation. Following such basic instincts is especially important in care facilities.

A care home should be bright, first of all. He always plans with "hallway" and "place/square". The hallways should not be narrow and closed, but bright as well, without a dead end. Longer hallways should be interrupted with a square, a destination on the way, with a different kind of flooring. The spaces between rooms are important. To avoid hallways one can also do only room sequences, or something similar as in Memory clinic Graz - a large space in which different functions find place in boxes. An open plan, only structured and divided by those boxes. It is an unbelievably bright hospital. In the dementia station on the ground floor, this open plan had to be slightly more defined, so they designed a yellow "path" on the floor, which leads through the large space, to the outside, and back in again. The color yellow was chosen because it is bright and easy to see, patients with dementia like to go exactly on this path. If it were in some darker

color, they would probably not use it because it might look like a hole to them. At first, each room had an exit to the dementia garden, but the hospital changed that because the patients were repeatedly going into the wrong rooms.

All in all however, the behavior of patients with dementia is very inconsistent and hard to predict. One might experiment with something and get amazing responses from half of the users, and terrible from the other half. The same as always with public response, but perhaps magnified by 10. One can expect the behaviour to the extremes - but this is not a rule, some patients are pleasant and completely average. It is hard to research a group of such different complexions and get one rule out of it. What architecture can do is provide a pleasant background to the happening, spaces filled with optimism and light, uncomplicated pathways and no sudden level changes to help make everyday easier. One must know what is needed, and when is your place to take a step back.

THEORY

LIVING AND CARE MODELS

SPECIALIZED CARE AND SUPPORT SERVICES

HISTORY AND FUTURE

STATISTICS

LIVING AND CARE MODELS

Staying at home or staying in a home

Sooner or later, one might come to a point when efficient self-care and living alone are not an option anymore, whether because of dementia or any other possible disability or illness. There are different care models in existence that provide external care to individuals that need it, which ranges from solely food delivery to 24-hour care at home. Another option for people in need of care is leaving their home and familiar surroundings to move to a chosen facility. Generally, we can list the following options and care services in Austria as follows:

Mobile social services: services at home, ranging from medical to social nursing, with support in housekeeping and care;

Semi-stationary facilities: centres where the person in need can go for a certain period of time, but still lives at home, such as day centres and day care facilities;

Stationary or inpatient 24-hour services: forms of living (whether at home or in a new home designed for such services, as well as community apartments) in a constant presence of nursing or care staff;

Temporary care and support: Transitional and rehabilitation care;

Permanent living in a facility: a retirement home (a residential facility for the elderly) or nursing home (a residential facility with nursing care for elderly or disabled);

In a broader sense, there are also alternative living and assistance models that fit into this category. These are less care-oriented and base more on nursing or support, the difference being that the person is being supported and motivated to continue carrying out their day-to-day activities (with assistance), working on preserving their own abilities for as long as it goes. Such examples are:

Assisted living: various services, types of care, leisure activities and others are offered to older people to prevent isolation due to restricted mobility or other disability.

Integrated and multi-generation living: Intentionally bringing together different age groups under one roof to stimulate the communal help and support among the residents.

Shared housing: apartment sharing, house sharing or communal living, where more elderly live in a common household. This form is highly beneficial in a social and economic sense, since they can, for example, share costs for one caregiver, rent and maintenance, and also help each other and spend time together.

Senior residences: a larger residential complex designed and equipped specifically with older people's needs in mind, with communal lounges, libraries and other social spaces, but also outpatient and inpatient care possibilities.¹



Fig.23: Peter Rosegger Nursing Home interior

EXAMPLE

Peter Rosegger Nursing Home
Dietger Wissounig Architekten

This nursing home is situated in the outskirts of Graz, Austria, near a new city development site Reininghaus. It is a two-floor, compact and square-shaped pre-fabricated passive house of a wooden frame construction. The exteriors, as the interiors are mostly characterized by wooden paneling and facade of untreated Austrian larch, which largely contributes to the comfortable and natural ambience of the home. Asymmetrical cut-outs in the square volume of the building serve as divisions for its spatial concept of eight housing communities of 13 residents, four communities on each floor. In the centre of the building there is a central "village square", partly covered by a roof terrace. On the opposite sides, two (dementia) gardens for the residents cut into the building.¹

I called the nursing home to find out whether the housing communities around the two gardens marked as dementia gardens are specialized for people with dementia, and I was told that the residents are mixed throughout the building with no specialized dementia station.

Housing communities: Each housing community is grouped around one of the four atria, which bring the light to the community space. It consists of rooms, a kitchen and a dining area for 13 residents and a carer, in a manageable, friendly and familiar atmosphere. The environment stimulates residents to move around by providing spacious balconies and loggias, a variety of paths and views through to other parts of the house. For a better orientation in the building, each community was developed around a different color concept. The rooms vary slightly in relation to location and the direction they face, but otherwise have a similar layout for one resident with a private bathroom. Each room has a casement window and a larger window with a low, heated parapet which can serve as a seat. The care and service rooms are centrally located within the building, ensuring that they are only a short distance away for everyone and that the home can operate efficiently.²

SPECIALIZED CARE AND SUPPORT SERVICES

Examples:
Seniorenwohngemeinschaft Plus
Hogeweyk Care Village

According to the Austrian Dementia Report 2014, there are different services available in Austria, specifically for people with dementia. The following couple of examples illustrate the variety of possible approaches:

Memory-clinics and specialized outpatient clinics for dementia

The history of outpatient clinics for people with memory disorders goes back to the 70s and 80s, with Thomas Crook in the USA and Norman Exton-Smith in the United Kingdom, because of great dissatisfaction with dementia care in public hospitals. Nowadays, memory clinics take an established part in most health systems across the world, even though there is currently no nationally and internationally accepted operational model or instructions for personnel structure. For the most part, memory clinics are a part of a hospital (managed

by psychiatry, neurology or geriatrics), offering diagnostics, therapy, management, psychosocial service, training courses and research activities, as well as spreading a greater awareness among the population.¹

GerontoPsychiatrische Zentrum (GPZ) (Geronto Psychiatric Center) was founded by Psychosoziale Dienste Wien (PSD, Psychosocial Services Vienna) in 2001. At the time of its foundation, it was unique to Austria, as well as Europe, because of its combination of an outpatient geronto psychiatric specialist unit and a memory clinic with a mobile unit for home visits and family counseling. The service is provided by a highly competent team, and includes examination with neuropsychological diagnostics, specialist diagnosis and therapy recommendations as well as comprehensive advice for those affected, their relatives and / or other caregivers.²

Day Care Facilities

Day care facilities offer qualified care to people with dementia, which can significantly relieve the caregivers at home or family members that are also undergoing stressful life changes as the need for care for the patient with dementia rises. Day centres present a possibility for patients with dementia to receive daily care, remain socially active, but can also still live at home. This is a crucial factor, since moving can be a very stressful and unwanted change in an elderly person's life, let alone for a patient with dementia. Besides, it is financially a much more affordable option than accommodation in a nursing home. Because of all the advantages, and the considerably low number of such centres in Austria, the growth in this area is very much desirable.

Depending on the facility, day centres can offer many additional services. Medical care can be included, as well as pick-up from home. The daily activities carried out include memory exercises, movement and relaxation exercises, creative employment such as handicraft afternoons, painting or poetry readings, music, dancing and games. Additionally, joint events, excursions or walks can be organized.

For people of old age, visiting a day center can offer a great alternative to full inpatient care. It combines professional care and social contact during the day, while the familiar and trusted surroundings do not have to be missed in the evening and at night.³

Stationary or inpatient long-term care

Besides memory-clinics, many nursing homes and similar inpatient care facilities also offer special care for people with dementia. This can be, however, on different levels, ranging from homes without special dedication, where the care for people with dementia is carried out integrally with the other residents; homes that specialize in care of dementia or/and (geronto-) psychiatric patients; homes with separated dementia stations; residential groups for

dementia patients as well as homes with special day care for people with dementia. The question whether integrative or segregative forms of care are more beneficial to patients with dementia is being largely debated. Studies show different advantages.⁴

I talked to Mrs. Fürli about that and in her opinion, integration can help a lot in the early stages of dementia, when the patient can still mostly keep up with other elderly. However, when this is no longer the case, combining the two groups could be very frustrating for both sides. (Interview s. x)

EXAMPLE 1

SeniorenwohngemeinschaftPlus

In 2017, this supervised residential community for older people with dementia was opened in Oberwart, Austria, as a pilot project for a dementia-friendly alternative to a care home. It reflects the wish of older people for a more self-determined, individually designed life, while still providing care and support of an inpatient facility. Residents living in two shared apartments, designed as a generally "normal" living situation, can get basic treatments and care through outpatient services in the same building complex. The caregivers are responsible for motivating the residents, encouraging participation and supporting them in their efforts, as well as providing required basic care services. For any additional medical services, they incorporate home nursing services. Two apartment units on the same level house 24 residents (12 each). As far as possible, residents participate in everyday tasks, work on their individual skills, and are managed in the way that they experience as much security and normality as possible. This kind of around the clock residential community seems like a sensible alternative to a nursing home for people with dementia, as long as dementia is not so far advanced that it would present a problem for communal living, as well as individual's well being.⁵

3 T. Millner-Kurzbauer & K. Meichenitsch, Österreichischer Demenzbericht 2014, 104-105

4 B. Juraszovich, Österreichischer Demenzbericht 2014, 107

5 Gut Leben mit Demenz, https://www.demenzstrategie.at/de/Umsetzung/ilmpld__74.htm 8.04. 10:33

EXAMPLE 2

Hogeweyk: Care village

This facility is specifically planned for dementia patients, and resembles a whole village where residents can roam about freely in a safe environment, separated from the outside world. The complex is situated in the Netherlands near Weesp, on a 12.000 square meter site. It was completed in 2009 and planned by MBVDA, with landscape architecture done by “Niek Roozen Tuin-en landschapsarchitecten”. On the ground floor, one can find 16 living units of approximately 320 square meters, a grand entrance, a theatre, restaurant, community centre, supermarket, grand cafe, hardware store, “dozing” or napping room, a Mozart hall, activity centre, physical therapy, hair salon and an outpatient care unit. On the first floor, there are another 7 home units and meeting rooms.¹ The concept as a mirror image of recognizable lifestyles in the society aims to keep the residents active in their daily lives, by creating recognizable environments and conditions in a safe, enclosed area. The nursing home groups are up to seven residents large, and formed based on shared interest and backgrounds. In that way, the design and decoration of the homes and surroundings can be tailored to the wishes of each lifestyle-group individually, based on the research of different lifestyles

and regarding the collective memory of the residents.²

Urban spaces, architectural elements and landscapes are created by the housing units in so called building blocks, which are the main feature in the urban design. Different attributed lifestyles are reflected in the architecture and interiors, creating a diverse urban environment, defining a character of the public space and the organization of living spaces.

The public space, which is designed in a way that the residents can roam through freely, is divided into diverse functions and outdoor spaces, for example theatre square, shopping boulevard, green areas of parks and gardens.

On the official website it is stated that Hogeweyk is not just a building, but a self-contained village. It is an example of architecture for protected living, with public spaces of qualities of historical villages and cities, designing a recognizable atmosphere.³ It is being critiqued by Gronemeyer for being a simulation of life, however a perfect care environment that abandons the real world, and therefore completely excludes its residents from society.⁴

¹ <https://hogeweyk.dementiavillage.com/en/kenniscentrum/>

² <https://hogeweyk.dementiavillage.com/en/concept/>

³ <https://hogeweyk.dementiavillage.com/en/architectuur/>

⁴ Gronemeyer, Das 4. Lebensalter, 2013, p.279

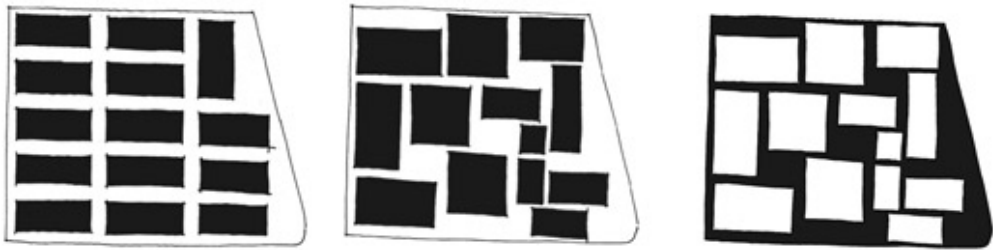


Fig.26: Hogeweyk conceptual diagrams

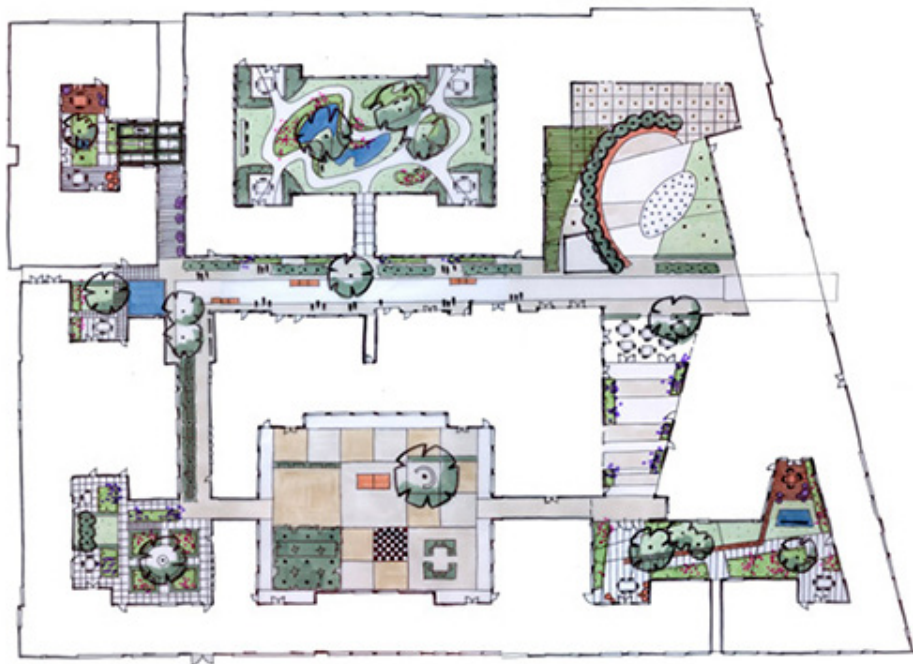


Fig.27: Hogeweyk conceptual plan of exterior

STATISTICS

According to nursing services statistics, around 71,800 people lived in inpatient care facilities in Austria in 2012 (Statistics Austria 2013 on 31. 12. 2012, source: Statistik Austria (2012), Statistik Austria (2013) BMASK (2013)). This number reached 95.100 people in the year 2018¹. It should be mentioned that since 2017, service providers in the areas of house sharing and assisted living are no longer included in the statistics of the alternative forms of living, but with the stationary services, so the statistics are hard to follow through the years.

The number of residents with dementia can only be estimated, because there is no comparable information available across Austria about the structure of the residents of care facilities (e.g. age, level of care allowance...). The first Austrian dementia report estimated that dementia is at around 43 percent the most common reason for admission to a nursing home (Gleichweit / Rossa 2009). Later studies in Switzerland showed that almost 65 percent of nursing home residents have dementia; medically diagnosed are around 47 percent, and 17 Percent is suspected due to their cognitive performance (Bartelt 2012; QUALIS 2012). In Austrian Dementia Report 2014, they assumed a similarly high percentage of residents

with dementia in nursing homes in Austria, and estimated that out of earlier mentioned 71.800 residents in inpatient care facilities in Austria in 2012, as much as 47,000 people would be affected by dementia (65,46%).²

If I follow the same formula for the calculation for year 2018, which is currently the last available statistics, and estimate that 65% of the 95.100 people living in inpatient care facilities in Austria are affected by dementia, the result would be 61.815 people.

Social ministry of Austria estimates that the number of people affected by dementia in Austria is between 110.000 and 130.000, that would mean that the calculated 61,815 living in inpatient care facilities present (very roughly) a half of all the estimated people with dementia in Austria. And if the numbers are supposed to double by 2050, we can only assume that the demand for places in care facilities will double as well.

¹ https://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/soziales/sozialleistungen_auf_landesebene/betreuungs_und_pflegedienste/index.html

² Österreichischer Demenzbericht 2014

Federal state	Mobile services	Alltagsbegleitungen und Entlastungsdienste	semi-stationary day care	Stationary services	Temporary care	Alternative forms of living	Case- und Caremanagement
Nr. of persons - recipients of care and services (annual totals)							
Total	153.486	(1.326)	8.188	95.100	(9.871)	3.485	103.774
Burgenland	6.151	268	308	2.791	324	248	-
Kärnten	11.597	-	229	8.138	307	110	1.937
Niederösterreich	31.809	224	666	13.144	4.169	-	21.597
Oberösterreich	21.012	233	1.405	15.528	2.522	40	14.006
Salzburg ³⁾	8.040	-	917	5.609	525	-	3.748
Steiermark ⁴⁾	25.234	573	867	17.045	.	1.427	7.765
Tirol	11.420	-	992	8.355	201	-	8.373
Vorarlberg ⁵⁾	8.293	.	604	2.910	653	150	2.478
Wien ⁶⁾	29.930	28	2.200	21.580	1.170	1.510	43.870

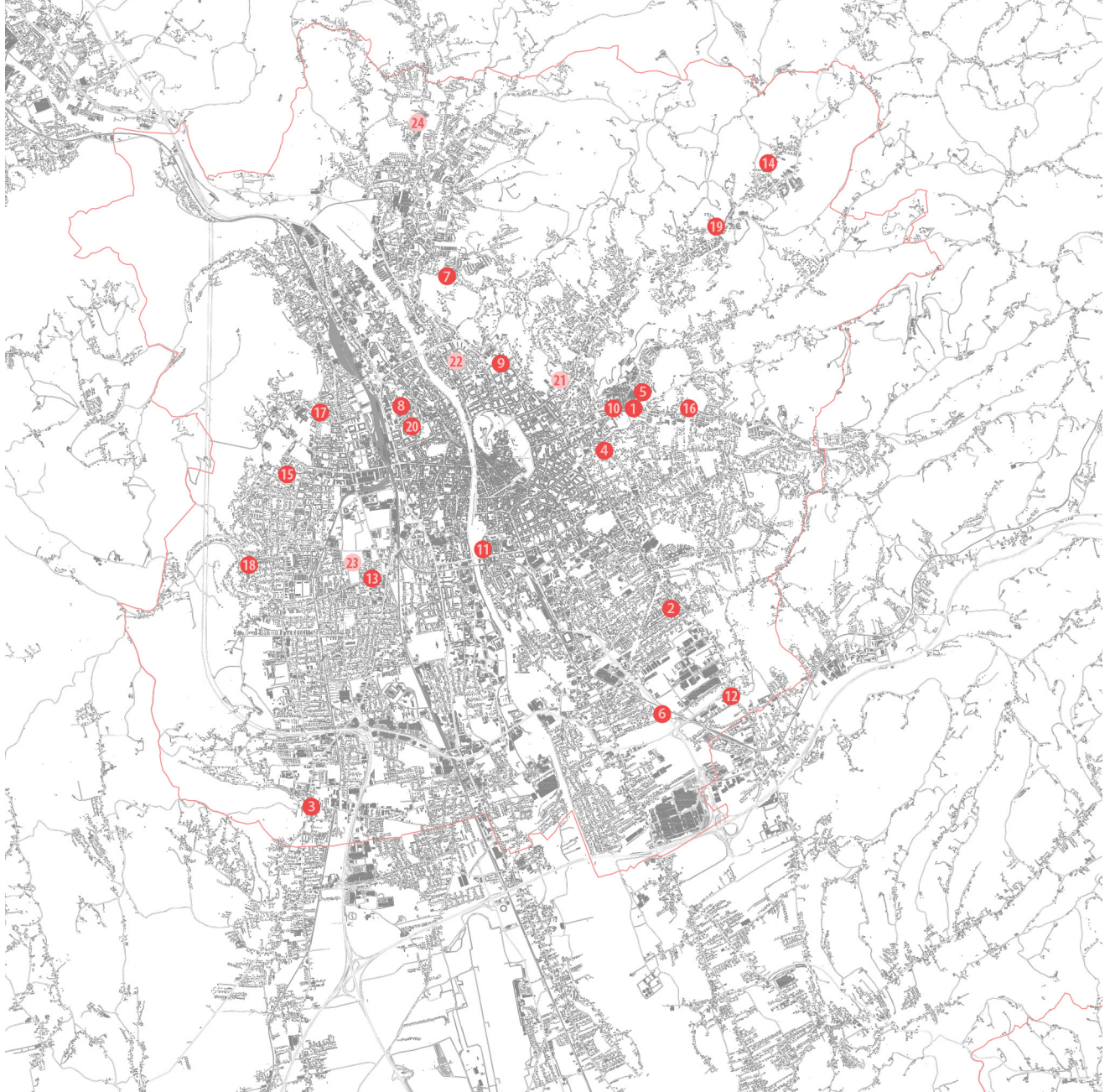
Table 1: Number of persons - recipients of care and services in Austria annually, per Austrian Federal state (https://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/soziales/sozialleistungen_auf_landesebene/betreuungs_und_pflegedienste/index.html)

nr.	care home	Address	zip code	Location
1	Annaheim der Kreuzschwestern	Riesstraße 24	8010	Graz
2	Pflegewohnhaus Graz - St.Peter	Hubertusstraße 6	8042	Graz-St. Peter
3	Pflegewohnhaus Graz - Straßgang	Aribonenstraße 6	8054	Graz-Straßgang
4	Haus am Ruckerlberg - Graz	Nibelungengasse 69	8010	Graz
5	Haus der Barmherzigkeit	Riesstraße 35	8010	Graz
6	Haus der Senioren Liebenau	Messendorfer Str. 79	8041	Graz-Liebenau
7	Pflegeheim der Dienerinnen Christi - St. Ulrich	Ulrichsweg 18	8045	Graz-Andritz
8	adcura Stadtresidenz Graz	Babenbergerstraße 80	8020	Graz
9	Seniorenheim Haus Lamberg	Grillpazerstraße 50	8010	Graz
10	Senioren- und Pflegeheim am Odilien-Institut	Leonhardstraße 130	8010	Graz
11	HKP-Residenz Pflegeheim	Neuholdaugasse 34	8010	Graz
12	Pflegezentrum Graz/St. Peter	Anton Jandl Weg 21-23	8042	Graz-St.Peter
13	SeneCura Pflegezentrum Graz	Peter Roseggerstraße 9	8053	Graz-Neuhart
14	Senioren- und Pflegeheim Fischbacher	Föllingerstraße 21	8044	Graz-Mariatrost
15	Seniorenresidenz Eggenberg	Eckerstraße 98	8020	Graz
16	Seniorenresidenz Graz-Ragnitz	Ragnitzstraße 60	8047	Graz-Ragnitz
17	Seniorenzentrum Eggenberg	Göstingerstraße 28b	8020	Graz
18	Seniorenzentrum Wetzelsdorf	Krottendorferstraße 14	8052	Graz-Wetzelsdorf
19	Haus Mariatrost	Mariatrosterstraße 263	8044	Graz-Mariatrost
20	SeneCura Pflegeheim Graz-Lend	Mariengasse 31	8020	Graz

Table 2: Private care homes in Graz and immediate surroundings (https://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/soziales/sozialleistungen_auf_landesebene/betreuungs_und_pflegedienste/index.html)

nr.	care home	address	zip code	location
21	Pflegewohnheim Aigner-Rollett am Rosenhain	Max-Mell-Allee 16a	8010	Graz
22	Seniorenresidenz Robert Stolz	Theodor-Körner Str. 67	8010	Graz
23	Pflegewohnheim Peter Rosegger	Maria-Pachleitner Str. 30	8053	Graz-Neuhart
24	Pflegewohnheim Erika Horn	Statteggerstraße 100	8045	Graz-Andritz
25	Pflegehaus Nestelbach	Dorfplatz 20	8302	Nistelbach
26	Perisutti Pflegezentrum Eibiswald	Eibiswald 51	8552	Eibiswald

Table 3: Public care homes in Graz and immediate surroundings (https://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/soziales/sozialleistungen_auf_landesebene/betreuungs_und_pflegedienste/index.html)



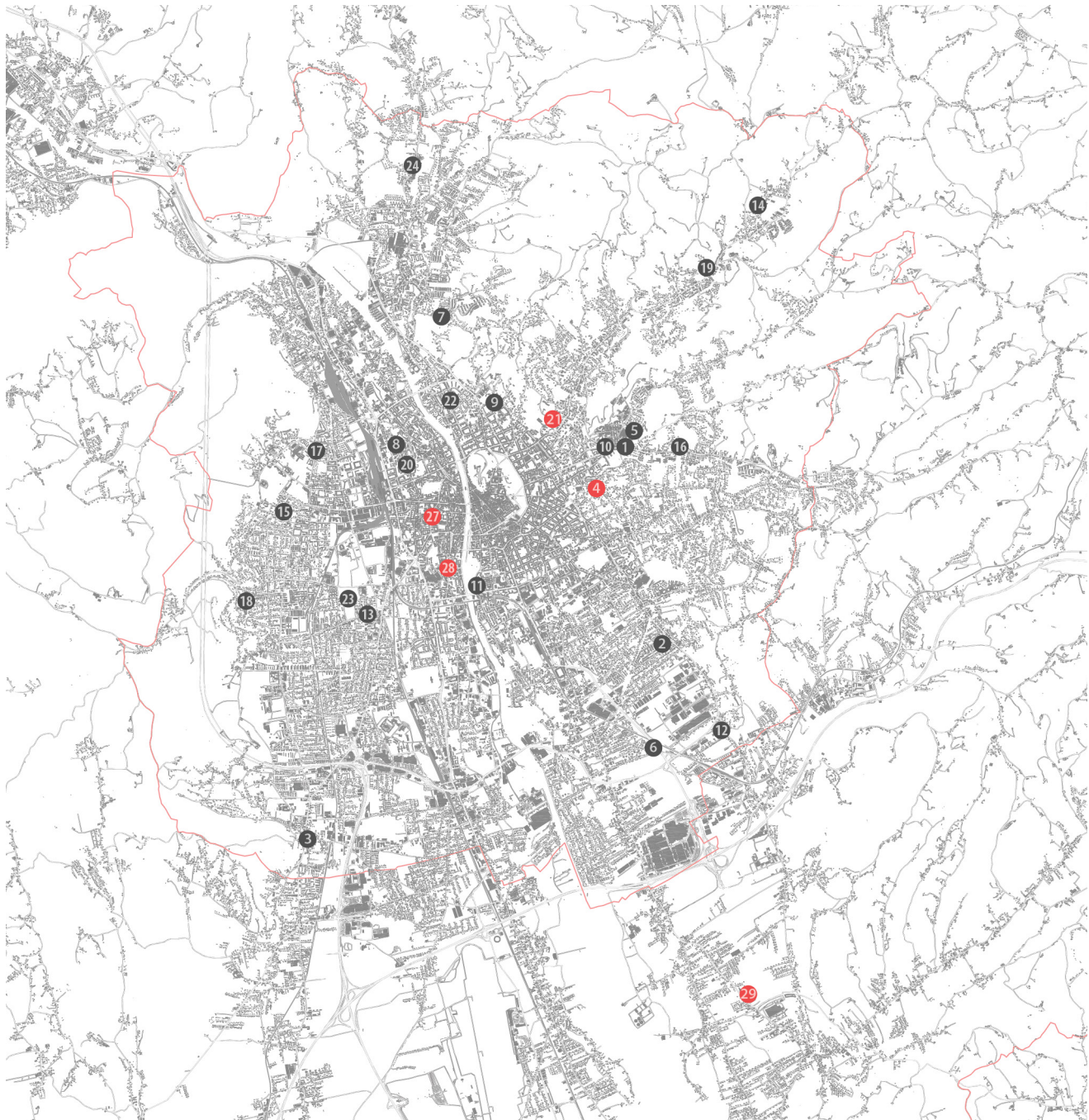
Plan 1: Locations of private and public care homes in Graz

- | | |
|---|--|
| ① Annaheim der Kreuzschwestern | ⑬ SeneCura Pflegezentrum Graz |
| ② Pflegewohnhaus Graz - St.Peter | ⑭ Senioren- und Pflegeheim Fischbacher |
| ③ Pflegewohnhaus Graz - Straßgang | ⑮ Seniorenresidenz Eggenberg |
| ④ Haus am Ruckerlberg - Graz | ⑯ Seniorenresidenz Graz-Ragnitz |
| ⑤ Haus der Barmherzigkeit | ⑰ Seniorenzentrum Eggenberg |
| ⑥ Haus der Senioren Liebenau | ⑱ Seniorenzentrum Wetzelsdorf |
| ⑦ Pflegeheim der Dienerinnen Christi - St. Ulrich | ⑲ Haus Mariatrost |
| ⑧ adcura Stadtresidenz Graz | ⑳ SeneCura Pflegeheim Graz-Lend |
| ⑨ Seniorenheim Haus Lamberg | ㉑ Pflegewohnheim Aigner-Rollett am Rosenhain |
| ⑩ Senioren- und Pflegeheim am Odilien-Institut | ㉒ Seniorenresidenz Robert Stolz |
| ⑪ HKP-Residenz Pflegeheim | ㉓ Pflegewohnheim Peter Rosegger |
| ⑫ Pflegezentrum Graz/St. Peter | ㉔ Pflegewohnheim Erika Horn |

nr.	dementia- related facility	address	zip code	location
4	Haus am Ruckerlberg - Graz (day centre)	Nibelungengasse 69	8010	Graz
21	Pflegewohnheim Aigner-Rollett am Rosenhain (Memory day centre Rosenhain)	Max-Mell-Allee 16a	8010	Graz
27	Caritas day centre for dementia ELISA	Elisabethinergasse 31	8020	Graz
28	Albert-Schweitzer-Klinik, Memory clinic	Albert-Schweitzer-Gasse 36	8053	Graz-Neuhart
29	adcura Gössendorf care home	Eschenweg 7	8077	Gössendorf

Table 4: Care homes in Graz and immediate surroundings with specialized service for patients with dementia.

- | | |
|---|--|
| ① Annaheim der Kreuzschwestern | ⑮ Seniorenresidenz Eggenberg |
| ② Pflegewohnhaus Graz - St.Peter | ⑯ Seniorenresidenz Graz-Ragnitz |
| ③ Pflegewohnhaus Graz - Straßgang | ⑰ Seniorenzentrum Eggenberg |
| ④ Day centre Haus am Ruckerlberg - Graz | ⑱ Seniorenzentrum Wetzelsdorf |
| ⑤ Haus der Barmherzigkeit | ⑲ Haus Mariatrost |
| ⑥ Haus der Senioren Liebenau | ⑳ SeneCura Pflegeheim Graz-Lend |
| ⑦ Pflegeheim der Dienerinnen Christi - St. Ulrich | ㉑ Pflegewohnheim Aigner-Rollett am Rosenhain |
| ⑧ adcura Stadtresidenz Graz | ㉒ Seniorenresidenz Robert Stolz |
| ⑨ Seniorenheim Haus Lamberg | ㉓ Pflegewohnheim Peter Rosegger |
| ⑩ Senioren- und Pflegeheim am Odilien-Institut | ㉔ Pflegewohnheim Erika Horn |
| ⑪ HKP-Residenz Pflegeheim | ㉕ Caritas day centre for dementia ELISA |
| ⑫ Pflegezentrum Graz/St. Peter | ㉖ Albert-Schweitzer-Klinik, Memory clinic |
| ⑬ SeneCura Pflegezentrum Graz | ㉗ adcura Gössendorf care home |
| ⑭ Senioren- und Pflegeheim Fischbacher | |



Plan 2: Locations of care homes in Graz, dementia facilities marked red

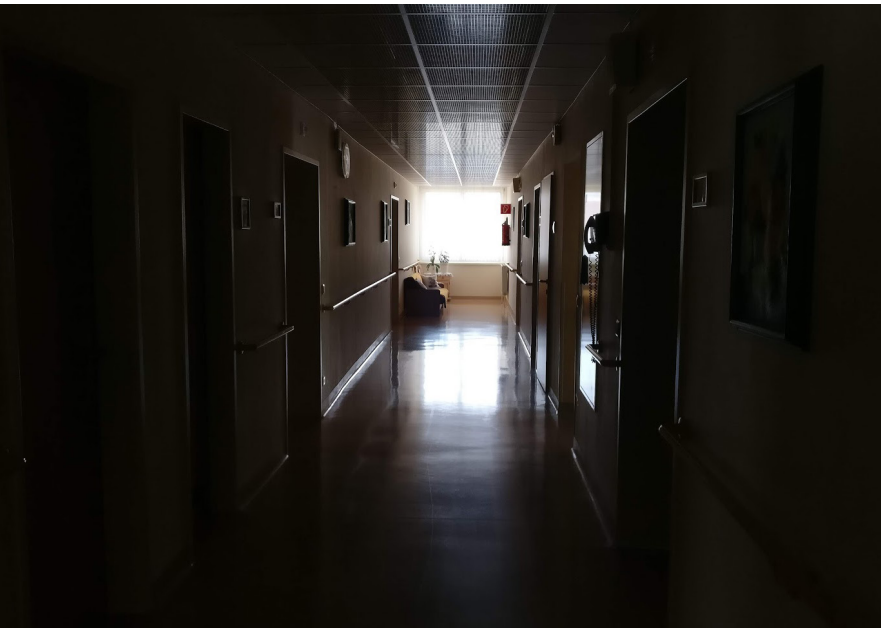


Fig.28: Perisutti Pflegezentrum hallway

HISTORY

And a bit of future

A general overview of the past development of care facilities for the elderly as a building typology starts with hospitals and post-war shelters, but has developed significantly since then. Naturally, it has a lot to do with general ethical changes in the society and a growing appreciation and respect to the elderly, or generally all vulnerable social groups. Based on the development of social norms and tendencies, Metzger (2018), also speculates about the future of such facilities.

Big lifestyle changes in the 1950s also brought some main changes in types of housing for the elderly. Up to now, five main generations of housing for the elderly can be distinguished.

Precursors and the first generation correspond with poverty during and after the Second World War, when a great need for simple accommodation prompted builds with many rooms and very little technical or sanitary equipment. Even the provision of basic care was a challenge, not to mention privacy (6 beds in a room), individuality, activities or any social aspects important today. These early care homes were primarily occupied by the wounded and the war widows that would otherwise, without any family connections, be bound to live on the street.¹ The individual space pro resident did not exceed 6 square meters - including the bed! A toilet was shared by 7,5 persons statistically, 16.5 shared one bath and 30 residents shared a ward bathroom.²

Second generation is defined by the economic upturn of the 1960s, with distinction between old

people's homes, retirement homes and care homes. Still, the standards for hospital buildings applied as a basis for strict, military-style organization of room sequences, long corridors and shared sanitary facilities, however care and services along with hygiene and individual consideration of older people were much improved. Bedrooms with two or three beds became the norm, and so the individual area of an occupant increased by 3 square meters. First, small communal areas appeared as well.³

Third generation marks the first fundamental change in elderly homes design around the end of the twentieth century. For the first time, housing and care needs were linked together in a facility, meaning that private rooms in nursing homes also included their own bathroom, provided more privacy and individuality, and aimed for the feeling of being at home instead of being treated. Communal and group activities are being provided, as well as outdoor spaces.⁴

Fourth generation aims even more towards individualization, smaller units with a familiarly designed environment and strengthened sense of security. Care was decentralized and carried out in residential units as is common now as well, with personalized approach. Groups of eight to ten residents shared a common area or day room, which became the main centre of the housing unit. Personal space per resident increased to up to 16 square meters.

Fifth generation reflects the tendencies of today's society, for inclusion, individualism, autonomy and awareness of the older generations. The residents are now also described as customers, clients, purchasers of services. Individualization can be seen in addition of doorbells, nameplates and even personal mailboxes. The community of the smaller groups is intended to resemble a family, where nobody should feel isolated or unsafe. A novel idea is also opening of the facilities to the outside world, with clients continuing participating in community life, pursuing old hobbies and habits outside of the facility, as they

have done before - meaning that even though they moved residency, their lives do not have to undergo too drastic changes. Small-scale structures resembling friendly neighbourhoods pay attention to proximity of people, simple orientation, visual axes and barrier-free access. With the importance of common areas on the rise, and private rooms kept approximately the same as in the fourth generation, one can talk about a net surface of ca. 50 square meters per individual (for units of 8 to 12).⁵

Sixth generation or what we currently seem to be at the brink of, according to Metzger (2018), is distinguished by the idea of multi-sensory approaches in the architecture for old people and those suffering from cognitive impairment (Studies by Gesine Marquardt, Kathrin Büter and Tom Motzek). Assistive systems will become more and more implemented, with the discussion of up to what degree they are not a threat to privacy. Multi-sensory specifications and discreet technical aids of the future might be included in design of the rooms and furnishing to assist residents with daily tasks and enable them longer independence in their homes. Besides, integrating care facilities for outpatients and day patients is another new aspect on the rise.⁶

Planning of the future should not only aim to develop people's sensory potential, but also substantially consider all aspects known about the target group. For example, instead of pushing facilities for the elderly to the suburbs due to increasing density of the city and related costs, future-oriented local authority policies should aim to enable the elderly to continue living in their known districts. As a Frankfurt Study by the BHF-Bank-Stiftung can confirm, this is what older people would prefer, and would make their decision to move to an elderly facility (and relieve their family members of worries) easier⁷. Further on, even in the cities, we should strive for "neighbourliness, friendliness and warmth" as stated by Gronemeyer⁸, to conquer loneliness and isolation of the city life.

3 Ibid., P. 4

4 Metzger, 2018, loc.1307

5 Ibid., loc. 1335

6 Ibid. loc.1250

7 Oswald, 2013, .P. 6

8 Gronemeyer, 2013, P.257

INTERIORS

COMPLEXITY REDUCTION

IN A FACILITY

STYLE



Fig.29: Reception/guest area in Perisutti Pflegezentrum.

INTERIOR

Because of the high possibility of visual impairment and perceptual mistakes explained in the chapter "Light", also the interiors should aim for clear, easily recognizable shapes, surfaces and objects. Meaning that there should be a contrast between walls and floors, furniture from floors and walls, yet at the same time as little contrast as possible on the floor itself - no colorful tiles that might be perceived as holes or three dimensional objects, camouflaged joints in floor coverings and drain covers. This camouflage approach can also be used with objects that might deliberately be hidden or should not pull attention to themselves, for example doors for staff or exits.¹

Talking about doors, according to Verhaest, there should be as few closed doors in the building as possible. Doors make people feel trapped inside, and frustrated when they are locked. That is why they should be as discreet as possible, especially for dementia patients that might constantly try to find a way out or home, as they are often restless and in a state of searching.²

¹ Feddersen/ Lüdtkke, 2014, s.106

² Metzger, 2018, loc 853

COMPLEXITY REDUCTION

Less is more and Gestalt Principles

In an effort to better understand why simplicity and clearness should be considered when planning the interior spaces, we can turn to “Gestalt theory” in considering how cognitive impairment affects perception. If one is simultaneously subjected to more stimuli, the processing of it demands more cognitive performance and compensation.

In fine art, for example, one can paint the same object in many different ways - from realistic to simplistic, to abstract. To identify this object, the viewer has to employ more or less compensation, depending on how many similarities it has to an object that the viewer already knows. If some parts of it do not fit into any of the known categories, the viewer can ignore those parts, simplify the image in order to understand its essence.

This process of reducing complexity is inevitably a part of understanding of something new, and can be described as “abstraction” in literature and Gestalt theory. Visual perception is a process described by

Merleau-Ponty as a natural reduction and selection - individual act of selecting properties.¹ The less clear the appearance of a figure is at first, the more cognitive action is needed for its identification. Based on these laws of perception, the same formula appears in various theoretical fields, which is: “Every reconstruction is considered in such a way that it produces the simplest possible structure”.²

Gestalt Principles

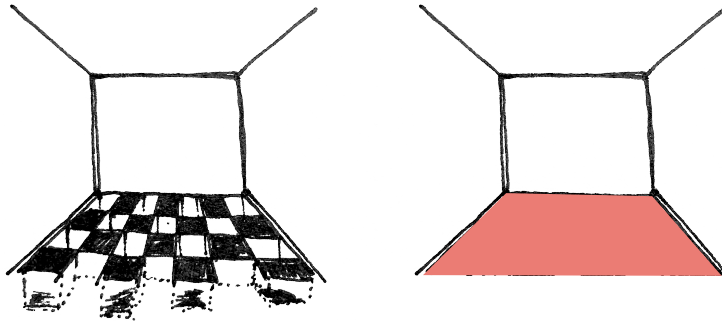
The Gestalt Principles is a set of laws, developed in the early 20th-century by German psychologists Max Wertheimer, Kurt Koffka and Wolfgang Kohler. It aims to explain how people can find a meaning out of chaotic stimuli by seeking order, grouping elements, recognizing patterns and simplifying complex images.³ Gestalt (psychology, social sciences): something such as a structure or experience that, when considered as a whole, has qualities that are more than the total of all its parts.⁴

1 Metzger, 2018, loc. 736

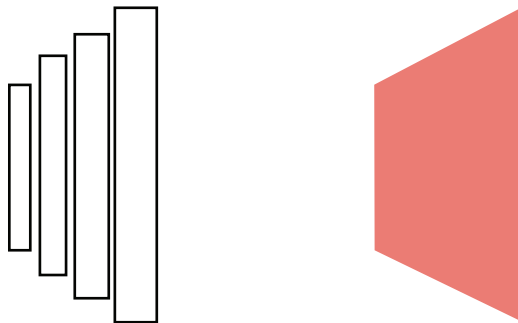
2 Metzger, 2018, loc. 773

3 <https://www.interaction-design.org/literature/topics/gestalt-principles>

4 <https://dictionary.cambridge.org/dictionary/english/gestalt>



Contrasting floor tiles might appear as holes in the ground to people with impaired visual perception. Complexity reduction: from "many tiles" to "homogeneous floor".



If a row of pillars is viewed from a particular angle, the gaps between pillars disappear and the colonnade might appear as a solid wall for a moment.

Fig.30: Sketches, complexity reduction and Gestalt Principles.

INTERIOR IN A FACILITY

A home away from home

SOCIAL ASPECT

“A dementia-friendly environment invites to encounter, reminiscence, exploration and activity”¹ Kitchen and living areas play a very important part in planning a dementia-friendly facility. This is where most of the daily social life happens. In homes where the private rooms or apartments are smaller, common areas take over the functions that would usually be happening in a private household. Here, residents can actively participate in daily routines that were a normal part of their everyday life before, such as cooking, cleaning, ironing, socializing and spending free time. Open floor plans that connect more functions together offer, besides other good qualities, a good overview of the space, which is positive for residents, as well as for the staff. Adding rooms used by staff to the whole (pantry, utility room, bathroom) enables the care personnel to always stay close by to the patients while still being able to accomplish everyday tasks.² According to the Technical Leaflet for Assisted Living by Land Steiermark, each house offering assisted living must also provide a common room for its residents, which is easily accessible for all and is at least 30 square meters large. It should provide plenty of sitting possibilities, barrier-free furniture (dining tables and kitchen cabinets/ countertops with space underneath) and kitchen appliances for comfortable use (oven, dishwasher, fridge, sink with warm water, microwave and others). Nearby to the social room, a shared, barrier-free toilet is also required.³

PRIVATE AREAS

A move from home into a smaller, new space can be much easier if people can find familiar aspects in the new apartment.⁴ Pieces of furniture can be very relevant for their owner, who might be emotionally connected to them due to memories revolving around them. Therefore, the freedom to furnish a private area in a wished way, with a preferred style and colour scheme should definitely be considered an important factor in making a move to a care facility a less stressful change. Further on, it should be stable and sturdy enough to simultaneously serve as a support for leaning on while walking or standing up. The bed is the main furniture piece of the private room or apartment, and the design revolves around it. The importance of lying down and resting increases with age, the sitting up gets increasingly difficult with back pain and other problems.⁵ The basic measurements of the rooms are significantly dependent on the space requirements around the bed: for the wheelchair user, for the accessibility in case of medical examinations and medical beds etc. The layout and size can also be determined by knowing how much time the resident will spend in a private area and what functions it shall fulfill. The movement a person makes in a room can be illustrated with circles of different diameters, which are associated with age. In childhood they grow larger as the child learns to walk, explores the surroundings and soon uses every corner as a play-

1 Verhaest Marquardt/ Viehweger, 2014, p.24

2 Feddersen, Lütke, p.100

3 Technisches Merkblatt - Betreutes Wohnen, p.11

4 Feddersen, Lütke, p.27

5 Metzger, 2018, loc.1824

room, the diameters are the largest in adulthood when every aspect of an apartment is reachable (height) and accessible, and get considerably smaller again in older age. From the size of circles the patterns of movements and daily routines can be read. It gives an accurate idea of the distances covered in an apartment and enables evaluation of independently completed actions that are essential for a comfortable day-to-day living. Spaces are generally experienced positively, when they stimulate their residents to engage in movement, which keeps them occupied, healthy and can be experienced as a combination of motor and mental activity.⁶

However, in regard to the small diameter of older people's movements and age-related physical impairments, keeping the room compact, with everything in the reach of a hand, seems sensible as well.

As Hermine Fürli told me in an interview (page 31), the residents in the second stage of dementia tend to spend their time in the common areas, in social contact with the caregivers and other residents. The usage of private rooms usually shrinks to the morning and evening routine, which means that they can be kept small. After all, displacement of some functions, such as the kitchen and living room, out of private into a common space, also motivates residents to socialize instead of staying isolated and alone in apartments all day. As already mentioned, isolation is one of the main problems to be avoided or solved in the lives of elderly, because it can cause serious mental health problems.

According to the Technical Leaflet for Assisted Living by Land Steiermark, each apartment of a facility or building with assisted living should have a balcony, terrace or loggia. Further on, an apartment should have a separated living room and bedroom, a min. 4 square meters of entrance way with a wardrobe, barrier-free bathroom, kitchenette with oven and dishwasher-hose, a hose/inlet for washing machine and either a storage room in the apartment or storage space in the basement.⁷

However, they do not mention any guidelines for alternative assisted living situations such as shared apartments, where private space might not need a separation of sleeping and living area, because the living area is a part of the common space.

⁶ Metzger, 2018, 2018, loc.1729

⁷ Technisches Merkblatt - Betreutes Wohnen, S.12

STYLE

A subjective take on the interior



Fig.31: Bourgeois detail from Perisutti

As already stated before, when choosing furniture one should consider contrasts, recognizable shapes, stability, barrier-free access and other aspects concerning its suitability for the elderly users. Apart from that, another aspect to consider when furnishing a care home or elderly residences is individual style. Each resident comes to a care facility with a different life story and from a different background. Personal style preferences play an important role in designing a new environment and making it feel like home. Whether it is a cozy, cottage-like interior or urban, modern style, the residents should have the freedom to include their personality in their private rooms. The common areas are more difficult to design in one distinctive style only, because they are meant for more individuals that might not like the same aesthetics. One way to tackle this is by designing different areas, corners or niches differently from the main central area, as Mrs. Fürli told me in an interview. That way, the residents are given an option to spend their afternoon rest in their favourite area, have a favourite corner in the common room, which makes it more their own.

Another way to approach interior design is by forming groups of residents with similar preferences, as they have done in Hogeweyk village. The complex is divided into different quarters based on the interior of the building, with 23 housing units of up to seven residents furnished according to their lifestyle-choice.¹

The following groups mentioned are also listed on the official website of Hogeweyk as examples, and by listing them I do not intend to categorize people into stereotypical groups, in any way judge their lifestyles, or implement that they might exclude each other. I am solely illustrating a way one facility tries to comprehend different personality and style preferences of their residents by naming their groups with a specific word that might best suit them.

Besides the furnishing, also the structure of daily lives and food varies between groups:

- **The Artisan** lifestyle group consists mostly of former members of trade professions or manual workers, who appreciate a homey and cozy atmosphere with a solid and traditional layout of the house. They tend to help with cooking and housekeeping. Their meals are traditional, with old-fashioned apple pie or cake being baked every week.
- **The Christian** lifestyle revolves around religion, praying and saying grace, as well as listening to religious music and visiting church services. With the lifestyle being rather restrained, the dishes served are also simpler. (I could not find any information whether they pay special attention to other religious groups as well).
- **The Cultural** lifestyle group pays special attention to cultural events, enjoys music, reading books and newspapers, and maintains a cultural, respectful behaviour, which also applies to the staff (less dialect use, less relaxed approach). They enjoy a generous breakfast and extensive dining, with variable menus including wine, fish, fruit, rice, vegetarian dishes etc.
- **The Gooise** lifestyle is in the Netherlands associated with the upper-class of the Gooi area, which calls for a correct etiquette and appearance. They visit classical concerts and enjoy communal brunches or tea parties, French cuisine with a lot of attention devoted to the presentation of dishes, appropriate decoration and classical house interiors.
- **The Homey** lifestyle group houses residents who have always been family-oriented, keen on housekeeping and like to do different house chores frequently. They play a lot of board games, socialize in a cozy, warm atmosphere and prefer traditional (Dutch) dishes.
- **The Urban** lifestyle is characterized by social involvement, extrovert residents, direct social interactions and vibrant atmosphere. They regularly even organize trips to the zoo, amusement parks or swimming pools, as well as enjoy afternoon drinks with finger food.²

² <https://hogeweyk.dementiavillage.com/en/interieur/>



Fig.32: Illustrations for different interior styles.



Fig.33: Grandparent's bedroom

OUTDOOR

GOOD MICRO-CLIMATE

SAFE PLACE, EASY ACCESS

FURNISHING

PLANTS AND TREES

OUTDOORS

The other side of architecture



Fig.34: Old postcard from Graz.

“The sky is the daily bread of the eyes.” – Ralph Waldo Emerson

The positive impact of spending time outside does not need special explaining nowadays. It is widely recognized that nature, fresh air and sunshine all belong to a healthy lifestyle. However, a whole-natural environment with uneven floor, roots sticking out of the ground, steep slopes and slippery leaves, can very fast turn from a "healthy environment" to a "health hazard" for people with perceptual disabilities and weaker bone structure.

Outdoor spaces for people with dementia need special attention designing. A dementia-friendly garden or yard is an indispensable part of the complex. It is a place where they can reminisce, relax in the sunlight, listen to birds, observe the changes in plants, and also pick up garden tools and activate themselves without much exertion.

Firstly, general park design rules apply, such as barrier-free accessibility. Secondly, there are some additional aspects that apply mostly to people with dementia, such as sensory elements and a "security border" to the rest of the environment.¹

Good microclimate

Sunny areas sheltered from wind and noise, as well as covered outside areas are needed for rest and comfort. Even though a breeze is welcome on hot days, too much strong wind can be very bothersome.

A secure environment

Parks and gardens for people with dementia should be enclosed areas, separated from the potentially harmful street environment, where patients could get lost or frustrated. However a locked gate can cause the feeling of separation and seclusion, that is why the entrance to the park should be concealed to avoid attraction.

Safe place, easy access

General essential design themes apply, such as barrier-free access, level and non-slip surfaces, handrails where required, level surfaces of grass and planting areas. Additionally, for the people with visuoperceptual problems, there should not be any contrasting colors on the floor, because they might misunderstand the reason for color change, thinking it is a higher or lower level, and potentially fall or fear walking across.

An “indoor-outdoor” area

A covered, transition space between the indoors and the garden is very useful for lounging and resting in the shade, as well as for spending some time in the fresh air even on rainy days. This can also be the space for different activities, such as card games, painting or morning stretching. This area can continue with half-covered design elements, such as pergolas and gazebos.

Furnishing

Comfortable and stable seats and benches across the park are necessary elements for rest. For elderly people and people with physical disabilities, arms on the side of the seating elements provide a grip for aid with sitting and rising. Regular intervals between sitting elements encourage walking from one to the next place.

Tables, groupings of seating features and parasols allow for informal socializing and act as a destination to go to.

Another important activity to be considered is gardening. Planters of different heights can be used so that people do not have to work on the floor or leaning over, to avoid back pain and dizziness.

Plants and trees

Firstly, any plants in a garden or a park should be safe. That concerns edibility, but also cutting of hanging branches and eliminating falling fruits that might potentially lead to slippery surfaces. However, with some distance to the floored pathway, apples and other edible plants can be great for gardening projects, and also trigger memory and stimulate conversations. Similarly, some flowers might also trigger memories, for example daisies from making daisy chains and flower crowns; and naturally, forget-me-not flowers. Herbal plants are also welcome for their strong smell and possibility to pick them and use for cooking.

Another aspect of plants in the garden is that they are a direct link to the natural world and bring by the seasons - the spring bulbs, blooming trees, summer flowers, then autumn colors and falling leaves, hanging up bird houses for the winter...For any patients that cannot move around too much, and especially people with dementia, it is important to stay in touch with this cycle of life for a better sense of time.¹

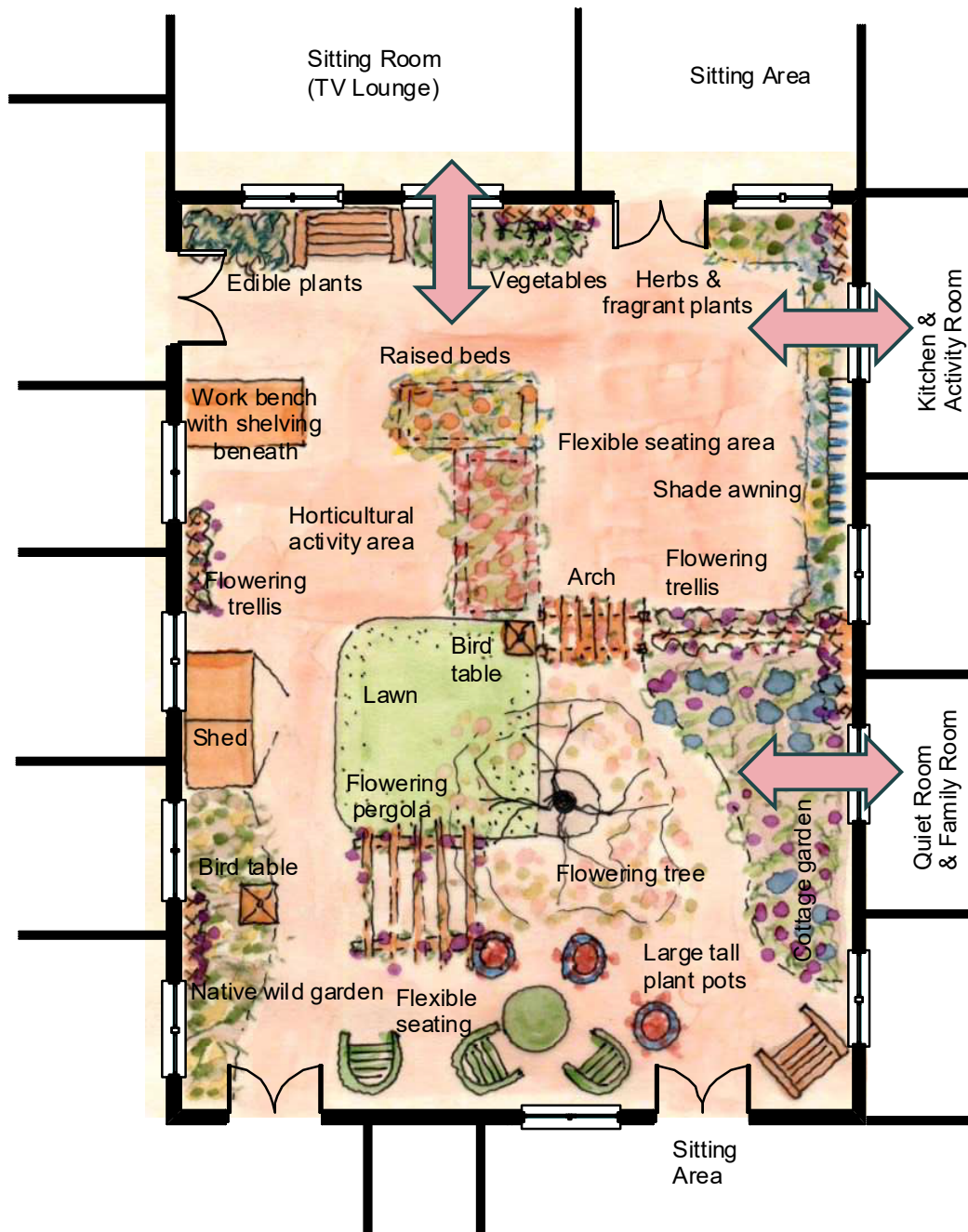


Fig.35: Chalfont G.'s sketch of dementia garden, 2009



Fig.36: Peter Rosseger Nursing home.

Raised bed for easy access and gardening without back pain.
Peter Rosseger Nursing home, Graz

A closer look into

SENSORY ARCHITECTURE



Fig.37: Multi-sensory room

MULTISENSORY APPROACH

Eckhard Feddersen writes that for people with dementia, sensory experiences play a central role. "As people's cognitive faculties start to decline and the memory of recent events fades away, what remains are direct sensations"¹.

There are approaches to design that want to stimulate the primary senses by using different textures, sounds, lighting etc. Such multi-sensory environment approach, also known as Snoezelen, lets the user experience a wide range of sensory stimulation without cognitive efforts.

A Therapy that uses such stimulation to a higher extent, is usually carried out in specially designed multi-sensory rooms. Such rooms are

generally furnished with soft, landscape-like surfaces, equipped with different lighting and projectors, bubble tubes, fiber optics, various textures, aromatic oil burner and sound system for relaxing background music.² Such Multi-Sensory environments can be relaxing spaces that help reduce agitation and anxiety, but also engaging, delightful and stimulating, which encourages reactions and communication.³

In the Introduction to my master thesis, I also wrote about my experience of a multisensory room, however not in therapy, but as a part of an architectural visit of an old facility building. My first association were the imaginative, experimental interiors of the 60s.

¹ Feddersen/ Lüdtkke, 2014, S.15

² Marquardt/ Büter/ Motzek, p. 47 in: Marquardt und Viehweger, 2014

³ <https://www.snoezelen.info>

But when talking about multi-sensory design in architecture, we are not talking of going to such sensory extremes as therapy rooms. We talk about holistic architecture, that by serving all the human senses, aims to compensate for (age-related) deficiencies.¹ The decline in different areas of perception requires compensation in other areas, and design can answer to that. Especially when compensating for sight (which is a sense people in general most rely on), other senses can lead the way through the room with recognizable textures, different materials for specific surfaces, acoustics, temperature and smells.² Qualities of the rooms that can function as an aid to orientation also motivate people to move about, as they are familiar with surroundings, recognize the next room easily, and are not afraid to end up in an unfamiliar or unsafe space.³

Smell can also activate a person in different ways: the smell of coffee in the morning, of food for lunch awake appetite, the smell of smoke may be alarming (broken appliances or fire) or comforting if there is a fireplace; the smell of laundry detergent can trigger the association with time (monday - laundry day); the scent of people coming inside can tell the weather outside - is it hot, is it raining?

Besides, the smell of natural materials like wood can also communicate location or, for example, rainy weather.⁴

Movement deserves special attention in this debate. It presents itself as an ideal form of stimulation for all the senses. Any kind of movement strengthens the muscles, improves coordination and activates the person. For the elderly, walking is an ideal form of movement, since moving through different rooms and environments stimulates senses by always implementing a change. Walking outside is known to clear one's mind, and is also healthy because of the needed daily contact of the skin with sunlight.⁵

The benefits of walking have been confirmed in the past, with the sole idea of walking while thinking reaching back to Aristotle and the peripatetic school in antique Greece.⁶ Therefore also outside areas deserve special consideration when planning, and might add to multi-sensory stimulations with, for example, aromatic herbal gardens and calming water sounds of a fountain. For this task, landscape architects should be engaged in the project, giving the outside areas as much importance as to the building itself.⁷

1 Metzger, 2018, loc.1414

2 Metzger, 2018 loc.1443

3 Ibid loc.1471

4 Ibid loc.1526

5 Niklewski/ Nordmann p.168

6 <https://oxfordre.com/classics/view/10.1093/acrefore/9780199381135.001.0001/acrefore-9780199381135-e-4870#>

7 Copak, 2006, p. 2)



Fig.38: Säynätsalo Town Hall: The brick benches around the windows are warmed up by the heaters underneath.

THERMAL SPACE

Our interior world has evolved toward a state of thermal uniformity. Acceptable temperatures for comfort have been standardized for a public sector. In Austria and other lands experiencing colder weather, a thermal isolation without thermal bridges or missing parts has become one of the main regulations for building standards, the reason being minimized need for heating or cooling (which is a huge financial and environmental factor). However this way, when you touch an interior wall, or a wall separating you from the exterior space, your hand cannot feel the difference.

Despite thermal uniformity presenting general comfort for our bodies, we tend to be attracted to thermal anomalies, like campfires, gazebos, warm blanket but a cold pillowcase. A change in temperature is a change in our body, and it can be pleasant or unpleasant. But the only way to experience pleasure at all,

is to move from a state of discomfort to a state of comfort. In an ongoing state of thermal neutrality, most deviations from it will be perceived unpleasant. The thermal experience can be stimulated by creating interior thermal zones, for example, keeping the bedroom cooler than the living room.¹

Just by considering a basic thermodynamics principle - warm air rises / convection - one can manipulate the thermal space in a house passively by planing spaces of different heights. Allowing the warm air to collect in a room, or allowing it to escape to another higher area. Orientation of the openings, as well as shading elements can also very much impact the interior thermal space.

LIGHT

Light can be an important factor in architecture, it can highlight an important feature just like a theater spotlight, or it can generate a light space that calls for a gathering space, like a candle on the table or a fireplace. A very old example of light play in architecture is Pantheon with its simple circular opening, oculus, on the top of the dome. The glow of light travels across the surfaces of Pantheon's interior as the sun changes position. When it reaches the floor, the light draws visitors together as if a new, small, round bright room appeared and everyone wants to experience it. Talking of "the place of light", Richard Kelly, an important figure in lighting design, defines three areas of light energy impacts: focal glow, ambient luminescence and play of brilliants. Focal glow is a localized source of light contrasted by surrounding darkness. Ambient luminescence however, fills the whole space with light and doesn't produce strong shadows.¹

Another aspect is the color of light. The color can come from the source of light (lightbulb, fire) or the surface light reflects on or travels through. For example, when thinking about a hospital interior, one probably thinks of white, extremely bright LED lights. On the other hand, churches, for example, help achieve a mystical atmosphere by using stained glass windows, which "transform" the sunlight into a rainbow of colorful lights.

On a smaller scale, such techniques can also be used for color-mapping of different areas or rooms in the house, for a better recognition of spaces.

1

Erwine B., 2017, 52-61

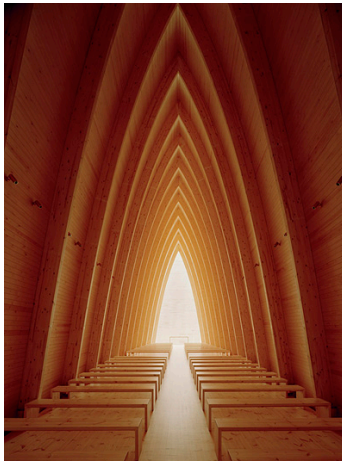


Fig.39: The focal glow in St. Henry's Ecumenical Art Chapel by Sanaksenaho Architects draws attention to the altar.

Fig.40: The Oculus in Pantheon.



Fig.41 /42: Alvar Aalto, Studio Aalto: The wall illuminated by natural light.



Fig.43: Swedish Cabin by Tove Fogelström: Kitchen counter illuminated by a skylight.



Fig.44: Light Walls House by mA-style architects, Japan



Fig.45: Stained glass windows in Acid Modernism House.

EXAMPLES

Acid Modernism House by Doug Aitken, California

An artist, Doug Aitken is known for creating multi-sensory experiences and spaces. Even his own house is an experiment on its own - it showcases his Modernism esthetic, "a warm, organic modernism that's also perceptual and hallucinatory". The house is full of multi-sensory elements which bring home to life, activate it. ¹ The artist designed furniture which stimulates different senses. For example, he created two dining tables, which are also musical instruments. One is made of slices of tuned marble, and the other one is full of wooden chambers which create a percussion sound upon tapping on it.



Fig.46: Green tapestry and a musical dining table in Acid Modernism House.

Even the staircase of the house is a musical device. Each wooden step has an inserted microphone, and so the visitors can create melodies walking or jumping up and down the staircase.

The walls of the dining room are covered in wallpaper of abstract greenery, which is very reminiscent of the greenery one can see through the window from the outside garden. It can create an illusion of the two separate spaces melting into one - and the printed wallpaper gaining the three-dimensionality of the real plants outside. Other elements include mirrored surfaces and use of color, which all contribute to creating of a highly stimulating environment.¹

I suppose, such wallpaper would be very confusing

for a person with perceptual disorders. It plays with the perception of far and near, and almost makes the glass disappear. Even without the combination of the wallpaper with real exterior plants, I think this pattern is so strong, irregular and contrasting, that it would probably agitate a person, not knowing what it is. I can imagine such amount of small irregular similar pieces to even give an appearance of movement, or shivering if one does not focus on it consciously.

On the other side, I can imagine a playful element, such as this musical table, to be accepted more positively.

1 <https://www.designboom.com/art/doug-aitken-california-home-musical-acid-modernism-video-05-18-2020/>

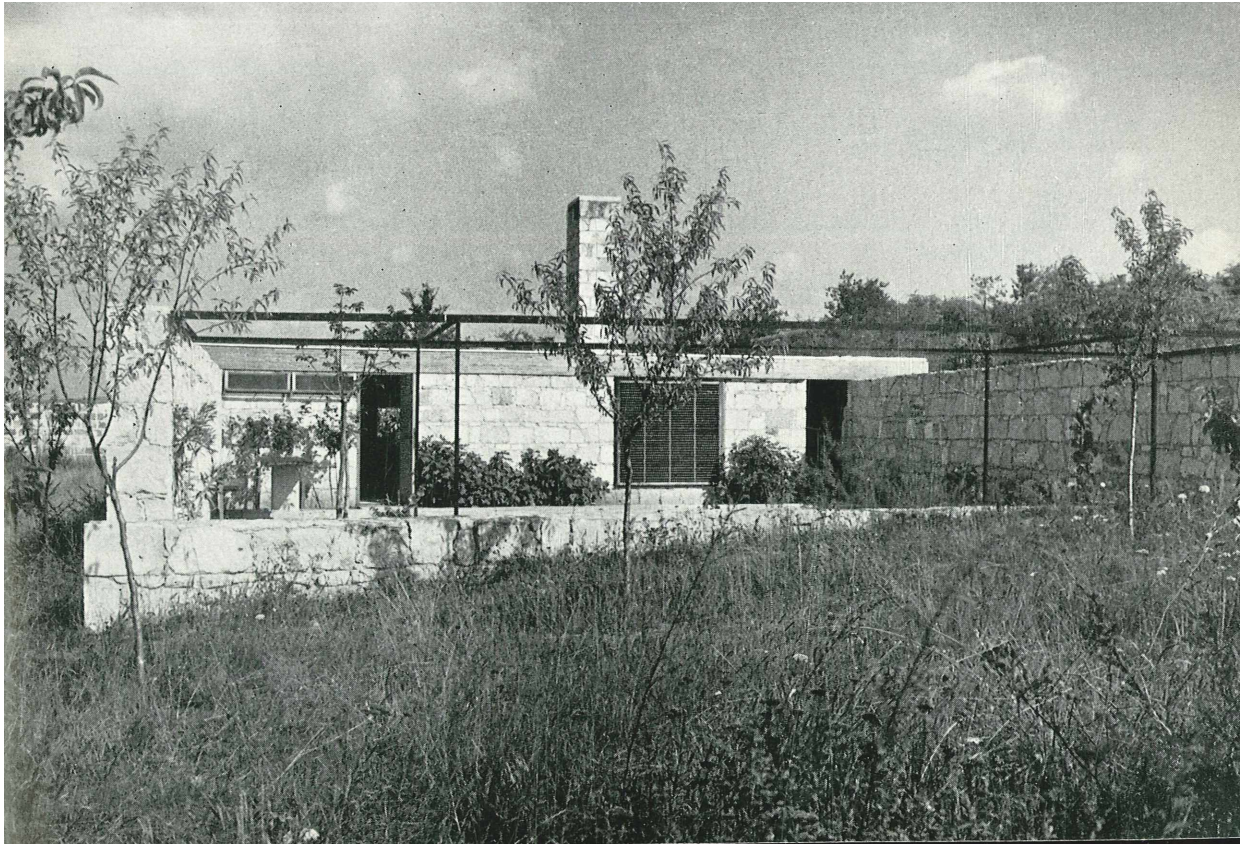


Fig.47: Sommerhaus in natural environment.

Roland Rainer, Sommerhaus. Sankt Margarethen im Burgenland, Austria, 1957

Next, a very opposite example to the one before. This holiday home on a countryside built of stone from the local quarry of St. Margarethen, fits perfectly and undisturbingly into the surrounding landscape. With its flat roof and a tower, it does not follow the traditional farmhouse type of Austrian countryside dwellings, yet the sensible proportions of the house, its archaic appearance, its low spaces and direct connection with nature through the exterior extensions of interior living spaces convey the peaceful atmosphere of belonging. The surrounding walled courtyard protects the resident from wind and insight, while the passages of pergolas and existing

trees provide shade and coolness. The exterior structure consists of mostly very low, elongated walls made of gray-yellow limestone, which are connected by wine-covered pergolas. As so, it almost rather gives a presence of low garden walls in a meadow with trees, more than one of a house.¹ The almost archaic interiors aim for a calm atmosphere and the feeling of an escape from the city, therefore technology has been minimized to basic needs. The use of electricity is reduced, candles are used for light and the fire is used for heating and cooking. The water for the kitchen and bathroom needs to be brought from a local well.²

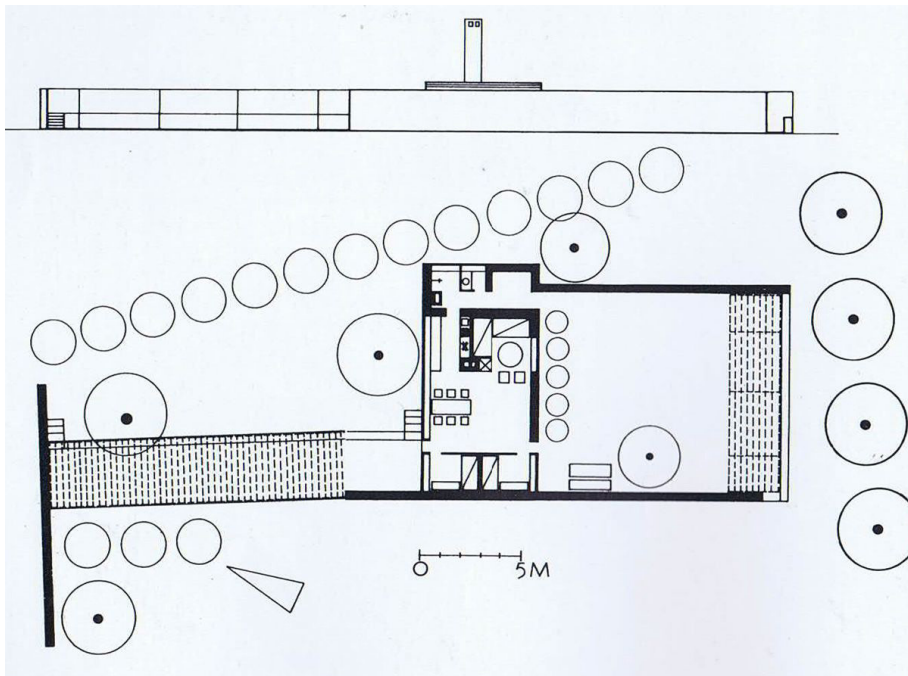


Fig.48: Elevation and a floor plan, in which the existing trees are presented as strongly as the architecture and furnishing.



Fig.49 / 50: Sommerhaus dining area and entrance.

The level of the outside garden is aligned with the height of the dining table and the dining room window, while the walkway seamlessly leads into the house due to the use of natural flooring tiles.

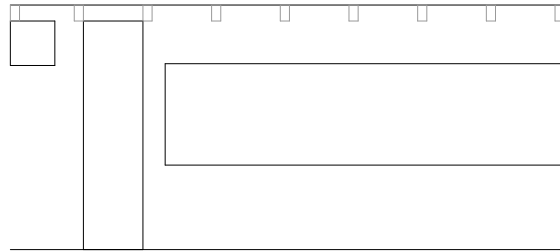


Fig.51: The openings in the dining area.

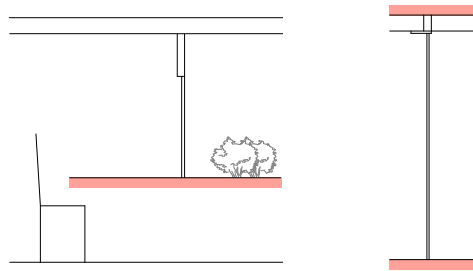


Fig.52: The surfaces in relation to the openings.

One might argue that if the first example, The Acid Modernism house, is an example of multi-sensory design, then this house cannot fit into that category, since the impressions of both houses are completely contrasting. I would, however, argue, that the Sommerhaus is definitely a good example of sensory architecture, if not multi-sensory. For its stimuli, it does not employ additional elements of interior design or decoration, but it is anyway rich in textures, raw materials and sensory situations. For example, the use of candlelight: the shivering of a flame, the warmth of fire, the immediate reaction of the light to movement of the air in the room. In the evening, the interior gets significantly darker than a regular home with sufficient electric lighting normally would. The water brought from the local well is cold, and one must even leave the interior to get it. The unmediated connection with nature, the peaceful environment and natural sounds surely calm down, while getting the water, lighting a fire and picking herbs from the garden stimulate activity.



Fig.53: Bildhauerunterkünfte.

Bildhauerunterkünfte, Johann Georg Gsteu. St. Margarethen, Austria, 1968

The Bildhauerhaus/Bildhauerunterkünfte or The Sculptor's house was built as a part of the complex for a first sculptor symposium in the St. Margarethen quarry 1959. This simple and impressive house out of stone and concrete was meant as accommodation for the sculptors.

The symposium brought together many international artists, and the creations can be found all around the scenic surroundings of the house itself, which is situated on the western slope of the hill.¹

It has been built on the remains of a former

canteen for quarry workers dating in the early 1960s and incorporates its existing sandstone structure with the new stone blocks from the quarry of St. Margarethen. Inside, the main common room is spacious and full of natural light. There are eight smaller sleeping units for the artists and a shared bathroom. The interiors are well thought out, for example, furniture can be folded away, some bricks turned 90° can be used as storage surface. The light coming through the hatches in the ceiling adds to the ascetic atmosphere.²

1 <http://www.st-margarethen.at/gemeinde/kultur/das-bildhauerhaus/>
2 <https://oe1.orf.at/artikel/330498/Bildhauerhaus-St-Margarethen>



Fig.54: The interiors are sincere and show the construction of the house.

In the design process, the architect focused firstly on the construction of the roof. The first design included a barrel-shaped roof made of polyester resin. This would, in combination with the natural stone, bring a strong contrast between the materials, which was being experimented with in the contemporary architecture at that time. However, this idea was later in the design process exchanged for another innovative solution. Gsteu used precast concrete U-shaped parts, usually utilized in construction

of industrial halls. However, the standard sizes needed to be adapted for the house by the architect's will to provide a pleasant tempo in the rhythm of the beams. This is the first such example of the use of these industrial beams for an aesthetic and recognizable presence of the building. With the sincerity of the raw materials and well defined parts it was possible to make the structure of the architecture methodically visible and tangible ³

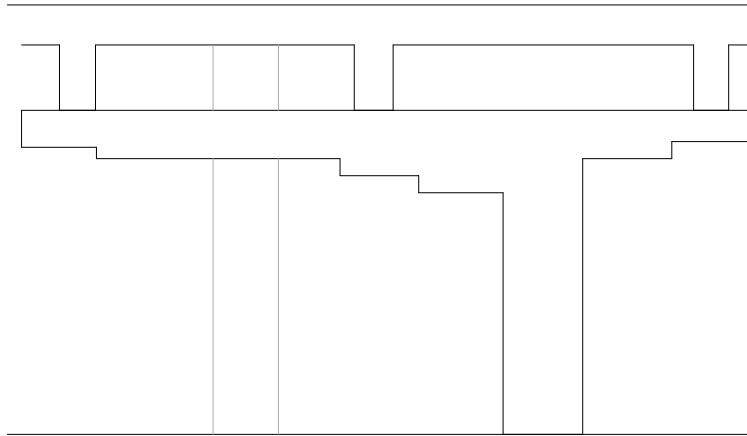


Fig.55: The outlines of elements in the room

This construction element, a massive column seamlessly connected with the stair-like beam in its way divides the room. The step-like shape of the beam gives it a certain verticality, the column therefore has a character of a short wall. The element however allows the glance to follow the equally massive and presentfull roof construction further on to the other part of the space. Even though I find it very appealing and interesting, I can imagine such element to be rather confusing for a person with dementia. For instance, the steps on the lower part of the beam may translate that the room is lower at that part, and one cannot pass below them in the lowest area. I wonder if the person with dementia would in fact pass below a beam like that without reconsideration or fear. Would the unusual and unknown shape confuse them, as to why this element is here and what does it mean, or would it go unnoticed? Would it be understood as a baring column even though at the top, it does not even touch the "roof"?



Fig.56: The Xylophone pavilion

Multisensory design often pops up in forms of art installations or small-scale architecture, with the aim to put emphasis on one sense in particular or provide an overall sensory experience as a reminder and a contrast to our everyday environment. The next two examples are both outdoors structures with an active take on multisensory design, rather than passive (as Sommerhaus, Bildhauerunterkunfte).

Xylophone pavilion, pH+, Greenwich, England, 2016

As a part of London Festival of Architecture 2016, the architecture studio pH+ built a multi-sensory pavilion for the London Centre for Children with Cerebral Palsy. Some of the features showcased in the pavilion were also to be included in the then new extension to the organisation's school building. Developed sensory elements are a result of architect's exploration of ways to integrate sound, smell, movement and reflection into architecture of the school, which teaches children suffering from motor disabilities how to develop physical skills.

The pavilion features a ramp along the wall of wooden slats, to which copper pipes are attached in a wave-like shape. One can play the walls as a xylophone while passing by.¹ At the centre of the pavilion, there is a golden cube one can enter, wrapped around the tree trunk. The golden mirrored surface has small leaf-shaped openings which bring out the dimension in the kaleidoscope-like interior. Children can play around the tree trunk, enjoy the play with multiple mirrored images, the soft grass and the sunlight reflecting from the golden surface.²



Fig.57/58: The copper pipes and the mirrored cube



Fig.59: Dufttunnel

Dufttunnel, Olafur Eliasson, Wolfsburg, Germany, 2004

Olafur Eliasson, an artist known for his large scale art installations and sculptures, created this site-specific work in the base city of Volkswagen. It literally translates to “scent tunnel”. 2160 plants in ceramic pots are arranged in lines, forming a 23.7m long tunnel with the diameter of 4.05m. Pots in three stainless-steel tubular sections revolve slowly around the tunnel at different speeds, while people can walk through the tunnel and experience this sensation of rotation in combination with the powerful flower scent. Different types of plants are used depending on the season, including yellow wallflower, horned violet, heliotrope, lesser calamint, lavender and sage¹.

Potted plants are something very general, and probably present in most homes - but the fact that they move around the viewer and surround him is surprising and plays with the sense of balance while walking through the tunnel. The tunnel is essentially a bridge over a stream in a natural park environment, and in a way it acts as a destination (shaded floral pavilion, a point of interest) while being a part of the path, meant to be walked through.



Fig.60: Dufttunnel

Practical Part

DESIGN CONSIDERATIONS

FOREWORD 2

While researching the architecture of elderly homes, I couldn't help but thinking that it is a very restrictive, and after all also a very well defined and thought-through typology. It is mostly clear which functions are needed and how the interiors should look like. Generic private rooms of such facilities do not really allow much architectural experimentation, since they should be flexible and general enough to be a home to many different people. But even if I did experimentally design the common areas, I would feel compelled to experiment with the rooms as well. I would have to justify the costly design with good statistic data, urbanistic solutions and all other components which usually accompany a pre-defined typology with a strict room program. I find, that would take away my attention to detailed, specific spatial situations.

The research into the basics of architecture regarding the feeling of safety and stimulation of all senses took me into another direction. My interest wandered more towards individualism in architecture, the recognition of oneself in the building and the recognition of this building as a home.

Especially my conversation with Prof. Tschom (S.42-44) and my menthor Franziska Hederer inspired me to step away from the large-scale planning of a whole elderly facility, but rather focus on the spatial qualities in detail, the building and its direct effect on the person living in it.

I follow the steps of this person, what she sees and feels as she moves around the house. An environment in constant conversation with its inhabitant, with direct architectural answers to the questions of spatial orientation and recognition.

During the whole process of research and planning, I kept in mind the sensitivity of the topic. I wanted to end up with a sensible, warm, individual design, where the materiality can be explored in its relation to the human touch, and where special design elements are implemented for the purpose of leading through spaces and marking different functions throughout the house.

I also discard the idea of an actual building site. The conceptual design placed in an abstract environment can however propose architectural ideas to be considered in practice of building facilities for the elderly, where particular elements or situations might find their place among the regular.

ARCHITECTURE AND ITS SPATIAL ATMOSPHERE

before interior design

I considered ways of achieving an architectural environment that calms down, helps to remember, and stimulates, all under one roof - or perhaps under more roofs? Step into the shoes of a person with complex perception disabilities and deterioration of memory and create a building that would reflect this persona.

A sense of safety and security is crucial for self-assurance and a better quality of life. What aspects in architecture concern safety? Generally thinking: light, good visibility, clarity of the space that gives the sense of order and control of the situation. The floor, free of unpredictable holes or stairs. The door that can be locked, and a back door that can be your escape plan, or simply just a private opening to the outside, versus the main door, which is a direct opening towards the public - for the guests, the postman; and represents the threshold of home. A lawn or garden, or a sufficient distance between that entrance door and a public space (street/road). A window to the street, to see what is happening outside. A bedroom away from the street, the safest room in the house, to sleep, to rest - to be at your most vulnerable. A bedroom should be a safe haven, where nothing can surprise you, where you do not have to keep watch. A bathroom nearby, to reach it easily at night in the dark. A grip for your stability and orientation, something you can lean on when standing up from the bed. This has to be something you can rely on always being there - something permanent - not just a chair you might have taken to another room the day before.

A home must also be comfortable, personalized to the needs of its resident.

Besides, I wanted to focus on a spatial atmosphere a room can have due to the architectural shape itself. Up to what extent does an architectural element such as a half-wall or a massive pillar divide a room and how does a roof shape translate in the perception of space - does it close the space, centralize it or extend it - is it light or heavy? And what effect does that have on the inhabitant - does it make you feel exposed, small and lost, or does it feel controllable and safe?

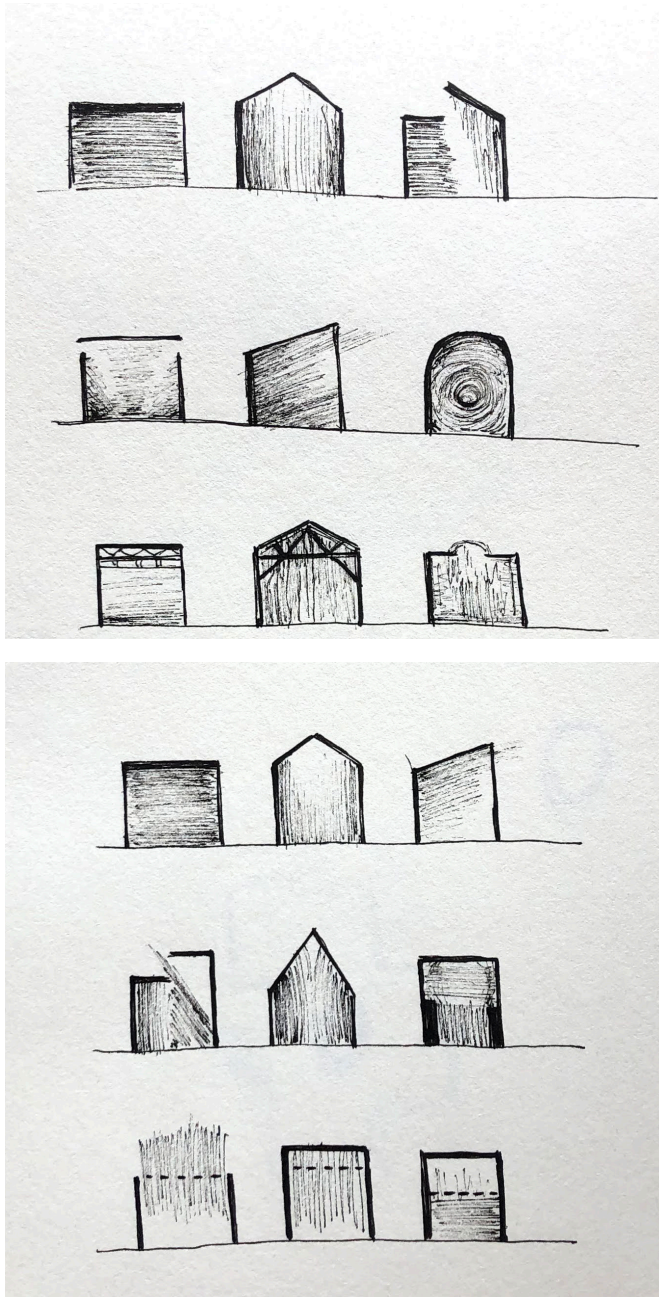


Fig.63: Roofing sketch.

FLAT - SLOPED - COMBINED/OPEN

The flow of the space ranges from horizontal (pressing down or moving forward?) to vertical (stable or unreachable?) depending on the relation of other dimensions - height, length and depth of the space.

ROUNDED

A dome centralizes the space, however again, the scale is important. Too large of a dome might feel sacred, possibly the opposite of homey and comfortable.

SKYLIGHT - HEAVY - LIGHT CONSTRUCTION

The lightness can be achieved by placing windows right below the roof (floating roof, open air flow). In my opinion, similarly a visible construction of the roof can bring a certain lightness to the space. Lightness in the way that the borders of the space are less defined- they are in layers. However, a massive construction above person's head can quickly also feel heavy (and dangerous?).

MEMORY

My past homes and their small remarkable features

I imagined this home for a forgetful person to be an active tool in the daily life, to provide a variety of spaces and scenarios, lead/navigate through rooms with its architectural elements. To be at once homey and cozy, but also surprising and exciting. To make you forget, but also remember.

The same architectural elements were coming up in my mind over and over, without me being able to make a strong argument why I want to include them in the design. They were the elements and situations I must have experienced throughout my life as interesting or pleasant. Trying to retrospectively explain why, for example, I have a tendency to add a round window here and there, I thought of some round windows that I know, from my school and also from some travels.

And so I did what the book »Lost in Space« suggests at the very beginning – I went back into my memories to figure out which spaces were most memorable throughout my life, and what made them stand out for me.



MARIBOR, early childhood, 3rd floor

I remember a pink door, a colorful sofa and my children's high bed. I remember that it was great living in the 3rd floor, because I could always see exactly who was playing on the playground outside and I could easily shout to them to wait for me. Also, when I was outside and forgot something, like a sweater or a water bottle, my mother would simply let it fall through the window and I picked it up outside, and I remember thinking how very practical this is.

However, I would like to focus more on my high bed. The bed was only about a meter twenty high above the ground, with a white stair leading up. Below was a perfect hiding spot, small enough that it felt private, yet big enough so that up to four kids could have a comfortable secret meeting in. The bed was in a corner, and by closing the curtains of the »under-bed-room« you could really separate it from the rest of the room, and make it so dark that you needed an extra light.

I think, retrospectively, that having a secret spot like this, just as some kids have a tree house or other hiding spaces, was for me probably a form of retreat, secrecy and privacy. A whole children's room is still a room, and it cannot substitute for a secret spot.

I think there is a special attraction to spaces that are too small – or just big enough to fit. Spaces that are no rooms because of their size, the lower ceiling and restricted movement.

For an elderly person, who cannot physically crawl under a bed and stay there comfortably, I think that a niche is a similar concept (just as miss Fürli from Perisutti Pflegezentrum explained). It is a concept of a room in a room, a concept of double coating /double envelope, a willingness for a complete separation.

Fig.64: Elevation

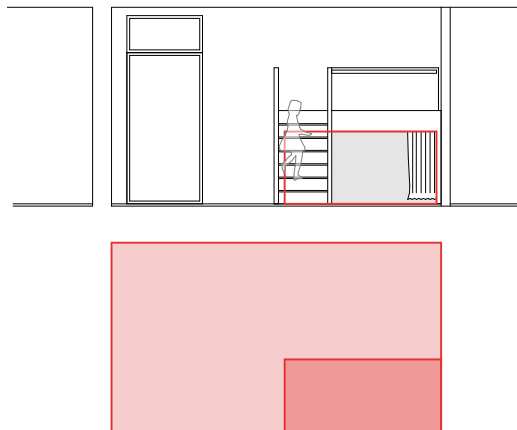


Fig.65: Children`s bed in section.



MARIBOR, childhood and teenage years, 5th floor

We moved to a bigger apartment in the same neighbourhood, where my room of ca. 25 square meters felt like my very own kingdom. It gave me (personal) space to do all sorts of projects, I could practice hand-stands and dance choreographies there- it was the biggest bedroom I ever had to myself. The fifth, top floor provided a great view to Pohorje, our »city mountain« so I could always see if there is any snow for skiing, if the leaves already changed colour or if the hill is stuck in a cloud of fog. The top floor felt safe and distant from the chaos bellow, but it was also inconvenient when forgetting something at home, when the elevator broke down, or delivering new furniture. Living in a block also brings many many neighbours – which is at once a good and a bad thing. I never hosted any parties or big events because that would bother the neighbours – friends who lived in houses with gardens did that. Even though I had everything I wished for and my family invested more than enough in me, this was the apartment that was the background to my decision to study architecture, where I started designing homes in the computer game Sims and grew determined to live in a house someday.

The way that my mother now renovated and re-functioned the apartment, it works much better without a children's room. She is against living in a house because of the maintenance. She would never move further away from the city centre to live in a house with a garden, because what keeps her going is the social life, the cultural events, the possibility to meet friends in the city and take a small hike up one of the hills surrounding Maribor, the possibility to walk to her job instead of driving.

Fig.66: Elevation

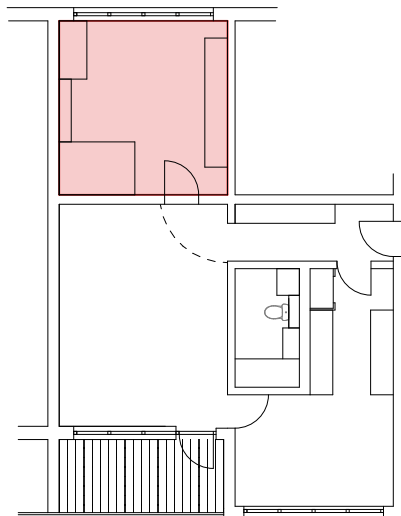
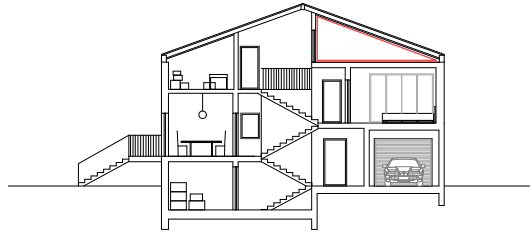


Fig.67: Conceptual floor plan of the apartment.



ORMOŽ, childhood

Ormož is the hometown of my grandparents, one hour drive away from Maribor.

Before the school started, I often spent many days in a row in grandparent's house. The best feature of this house is not even inside - it is a large garden on three terraced levels. They always had a dog I could play with, the kids of the neighbours were right on the other side of the fence, so we didn't have to ring any bells to get together.

The second best thing was going through old things in the attic: old books, vinyls, zither, fur coats, little religious figures, jewellery, photographs...The basement, on the other hand, was cold and scary, even though it also had a lot of things stored there. I also liked the soft, warm wall tapestry found everywhere around the house.

I once discovered a small door behind a thick curtain in the attic floor. I had to climb on a chair to reach the door. Turns out, it was the door to the higher attic, which was almost completely empty, dark and cold. I made it my secret place and took some of my drawings and books up there. I am very scared of spiders, but apparently, back then, this was not a problem. When my grandmother found out, she panicked because supposedly, there was a hornet's nest somewhere and I could get hurt, but I didn't notice any hornets. However, she locked the door and hid the keys, and I never found them again.

The house was always quite cold and we had to keep the door to the living space closed, so the warm air wouldn't escape to the staircase. It is built in the way every other house on that street was built - with five floors counting the basement (which are actually split levels) and a dark staircase in the middle. The garden is on the level of the main entrance, but the living area was one floor higher, so if we wanted to have a lunch outside, we always had to carry everything down the stairs. The amount of stairs in that house proved to be very inconvenient when my grandpa broke his leg. He could walk around, but couldn't use the stairs, so he was caged in a living area, but could not get out of the house properly. The questions turned up, about what we will do with the house, when they get really old and cannot walk well anymore. I always suggested they should have a ramp down to the garden, but it was not a realistic idea. However, luckily, 19 years later, with 91 and 86 years, my grandparents still successfully manage all the stairs, take long walks around the town, and work in the garden. I wonder if that is not partly because of all the stairs that always kept them active, or if they would be in such good shape in any other house anyways.

I definitely suppose that the house and the garden kept them active. I cannot imagine them walking around as much in a smaller apartment in an apartment block, without a private garden, where one must really properly leave home to get some walking done.

That is partially why I lean towards a larger house in my design, a house that keeps you moving.

Fig.68: section



Fig.69: Grandma's kitchen display



Fig.70: A clock in the living room



Fig.71:The wall tapestry



GRAZ, student, shared apartment

Funny enough, I found myself in a room with a high bed again. It was a room on the ground floor of a old city building with ca. 3,6m high ceilings with rounded edges. My bed was above the door to the room, which means it was approximately 2m above ground and left ca. 1.5m below the ceiling. In a way it felt like a complete opposite of my children's bed in Maribor, but nevertheless very similar. On the opposite side of the room, there was a large tall window to the street. My room was higher than the street level, so I couldn't see the people walking by and they could not see into the room, but when I was higher, on the bed, I could see perfectly through the window down to the walkway. This distracted me often, because I liked to observe the happening outside without being noticed. It was a great spot for an overview of the street, but also of my room. Most of the things (except the closet) were well visible from the bed, and when I searched for something, I sometimes just had to climb up and look from there. Seeing your furniture and belongings from a higher perspective is quite fascinating, because we are normally used to seeing everything on the eye level. If a roommate came to my room while I was in the bed, talking down to them felt like holding a speech on the pedistule, and there was always a small element of surprise when I peeked down from the bed and they realized I was above them, which one usually would not expect.

Also when visiting a new city I always like to find a hill or an observation point from which I can get a better feeling of the orientation. So I imagine as a way for a person to really get to know the house well, and understand it, an observation from a higher perspective would be helpful. That was one of the main design ideas that I wanted to include into a building for a forgetful person.

Fig.72: Elevation

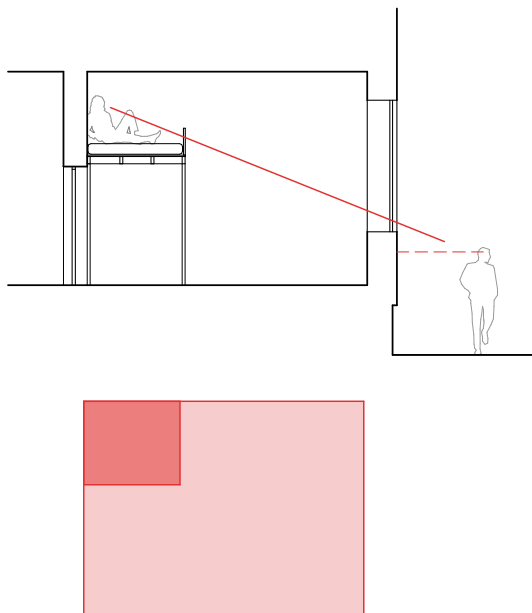
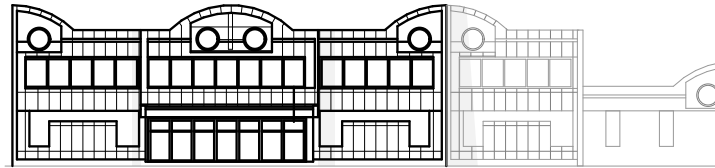


Fig.73: Section with the street.



MARIBOR, childhood, school

I continued thinking about buildings that impressed me, or at least awoke some interest in me as a child. My mom took me on many trips around Europe early on, so I can remember loving Gothic churches, especially the stained-glass windows and extremely high ceilings. I also remember being blown away by the cave apartments in Tunisia, saying that one day I will live in a cave like cavemen, if it would still be possible. I was also impressed by Gaudí and Hundertwasser. But that was only sightseeing – in and out of amazing architecture without knowing it or living in it.

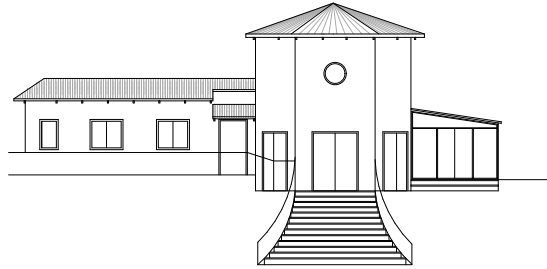
So I thought of the building that I knew best and felt compelled by, and was only a couple minutes away from my home – the school Tabor 1. I remember seeing it the first time and thinking that it is ugly from the outside, with its yellow steel facade, weirdly shaped roof and many round windows. However It was a building I spent most of the days in, and I started appreciating those windows. The round windows are higher than the rest, so I could never get close to one, but I have gotten into a habit of staring up towards a round window instead of staring out through a window with the view. Other windows had shading elements, but the round ones did not, so they always appeared brighter and threw a round light on the opposite wall. Especially when the sun shone directly through the round window and illuminated all the particles in the air above us, that was when I really became aware of the window, and I think the idea of a round window is still stuck in my mind.

I revisited the school this year, and suddenly saw it in a completely different light. I found it to be an experiment into what a happy, children-friendly building might look like from the outside. If you would have to guess, what that building is, you would probably say it is a school. But I had to remind myself, that as a child, I did not think it was a »nice« building, so when we as architects sometimes imagine what a building for a specific population should look like, we might be very off. Turns out, this school, as well as a first school I went to, were both built by the same architect, Jaroslav Černigoj, a recognizable name in Slovenian Architecture.

Fig.74: Elevation



Fig.75: The empty school in time of coronavirus



MALLORCA, recent, vacation home

The thought of round windows continues with a building that is one of my favourites when counting only those I resided in. It is a comfortable large house in Mallorca, and besides the warm weather and generally attractive architecture of a warm climate, I appreciate this house because of its layout and small but noticeable architectonic features, such as a small round window at the top of the octangular »tower«. The octangular tower is one big room with sunken split-level floor (difference between the entry level of the house and terrace level) and a very tall ceiling, showing complete wooden roof construction of an octagonal pavilion-style roof without any insulation and a large ceiling fan. Across three sides of the octagon is a large built-in sofa bench, which makes it a great central living room where many people can sit or lay in a half-circle. The next three walls of the octagon have large wooden terrace door which open up the whole space to the garden. The remaining two sides of the octagon have a large bookshelf, a fireplace, and an open way to the kitchen with the kitchen isle.

I find the contrast between the tower and the rest of the house very distinctive. The combination of sunken floor (when sitting on the sofa, your eyes are at the knee-level of people in the kitchen) and extraordinary high ceiling gives this space a significant atmosphere which disappears completely the moment you step up to the kitchen isle. It feels like the whole house is rather normal, the rooms are reasonably or comfortably small, one does not feel lost (like I find it happens sometimes in modern large houses), yet when stepping into this octagonal space, you know immediately that you are at the centre of the house.

In a similar way, I imagine a distinction of spaces in my design. A house with architectonic contrasts which define spaces instead of a simple wall and a door.

Fig.76: Elevation

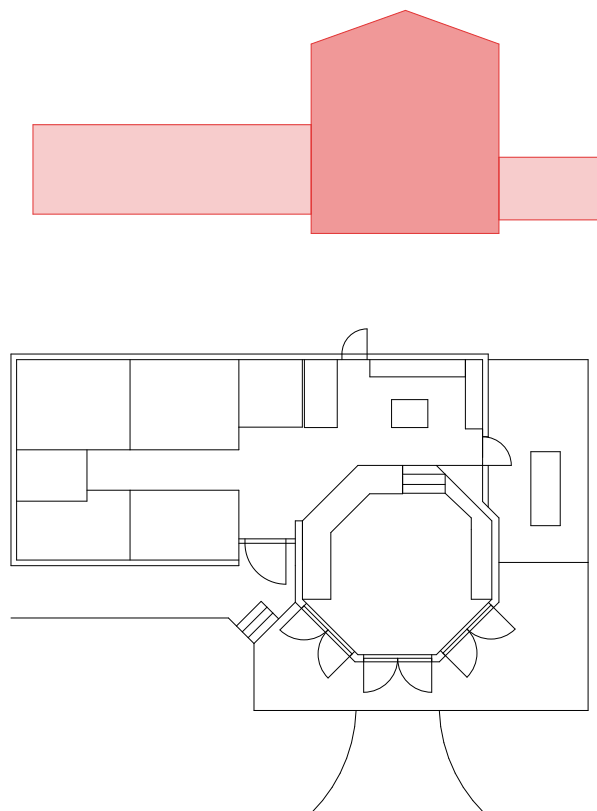


Fig.77: Conceptual section and floor plan.

PRE-DESIGN

Process and Considerations

I had some elements and layouts in mind, which I wanted to test, to see how a person might behave in them. A simplified list would look like that:

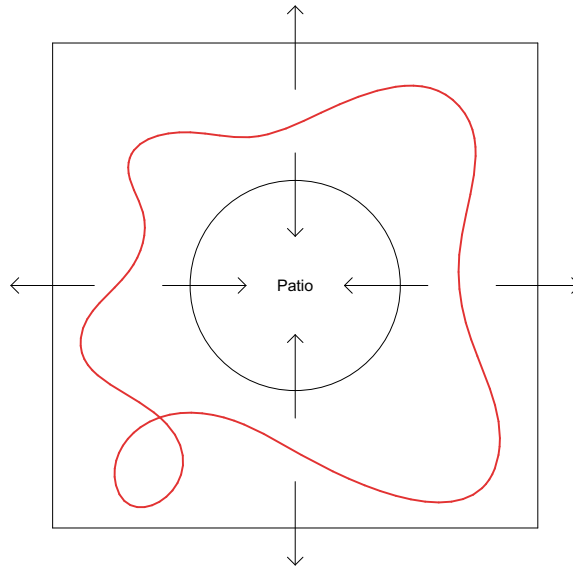
- a ramp upwards
- rooms of different heights
- even floor without stairs
- wayleading walls
- variability of spaces and materials
- indoor-outdoor connections
- well-defined outdoor space
- contrasting scenarios
- niches

At first, I had in mind to explore those ideas as a part of a bigger facility for the elderly, but nevertheless, the process starts with just one person and his/her course of the day. I tried to imagine the steps this person is taking and the surfaces she/he leans on when walking.

Theoretically, I could have added more rooms, more users and more functions, but with time, I disregarded that idea and rather focused on the environment for one person or a couple living together.

I was observing the flow of the space in the house, the interconnectivity of functions, the readability of the layout and the versatility of architectural features. I wanted to create bright, open and clear spaces, but also darker, smaller or "hidden" spaces for the contrast.

Most of my design process happened through drawing different floor plans and changing around the functions.



1. CENTRAL

My first consideration was a centralized patio house. The idea came from general architecture of control and communication (theatre, parliament, but also prison) - providing a person a focal point from which the whole house is well visible. A central patio would work as an orientational "lighthouse" or an object of recognition, visible from all rooms. Such layout would also encourage circular movement. However, on the second thought - it could also be confusing for a person, changing the room yet seeing the same thing. "Going in circles" also feels like coming nowhere, which can be frustrating, and would demand very distinctive interiors of different rooms.

Therefore I moved toward a spiral - spiral movement symbolizing growth and development. Following an outside wall along the spiral one would move from the most interior, private part of the house, to the more open and bright living space. Staircases and level changes are generally problematic for the elderly. Therefore, to get on a higher level, I imagined a ramp leading to the roof of the house.

With an intent to break down the restrictions of rooms as we know them, I first considered the house

which offers all functions twice - so a forgetful person always has everything at hand. The functions that would appear around the house as they are needed during the course of the day. Starting with sleeping, from there to the bathroom (WC and sink), to the wardrobe, to the tea kitchen for breakfast and coffee. After that however, the routines differ depending on the daily situations. The layout should encourage a contact with the outside (walk to the store, work in the garden), an active part of day. Toilet should also be close at any time. Followed by cooking a main meal in the bigger kitchen, sitting at a bigger table, taking an afternoon rest on a day bed, reading or resting on a sofa in the evening, and then through a bathroom again for the evening routine, back to the bed. However theoretically practical, to have double of everything is practically rather luxurious and not so easily maintainable. For example, one might do grocery shopping and leave items in one kitchen, then search for them in the other and get frustrated. The same with bathroom utensils and other things one might leave around the house. It made me consider whether keeping the size of the house down to only necessary things would be a better solution.

Fig.78: Central concept with the atrium.

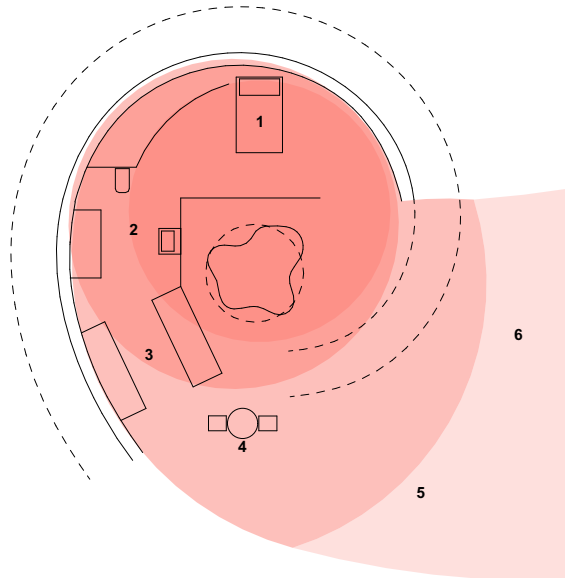
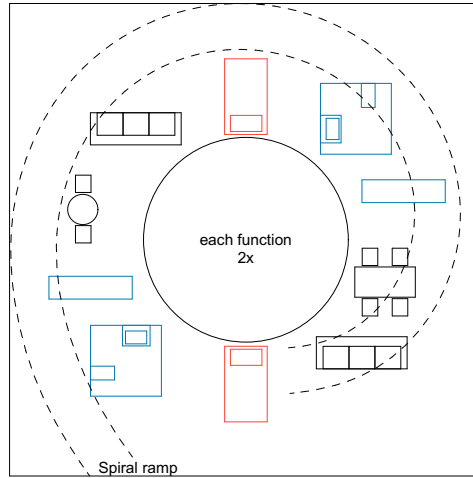


Fig.79: Central concept with the spiral ramp.

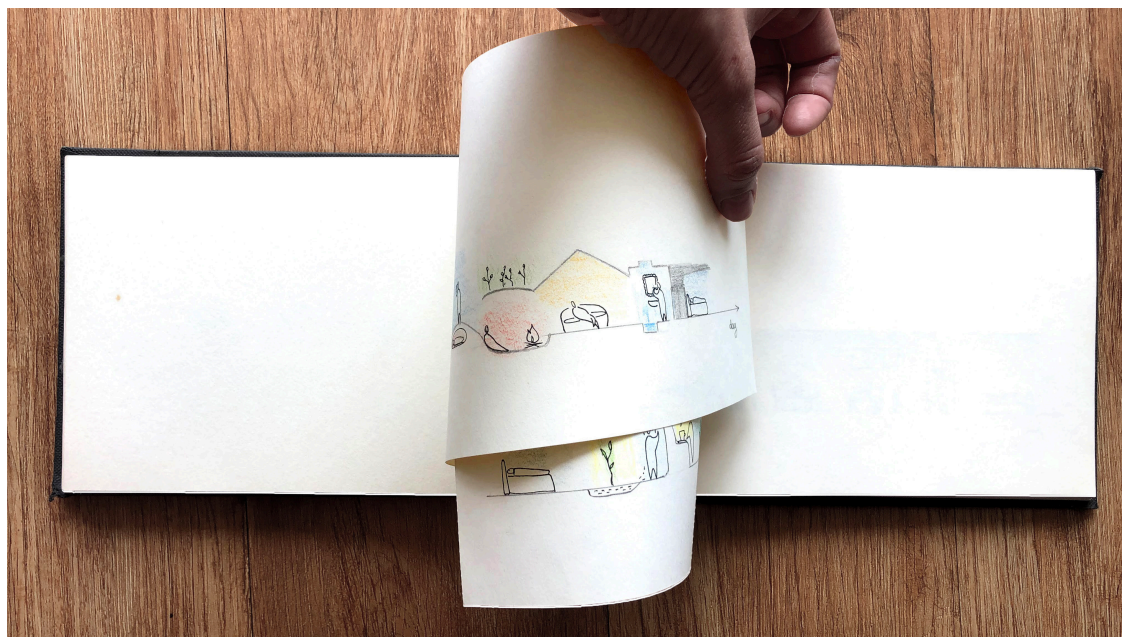


Fig.80: Functions in a spiral



Fig.81/82: Meier/Ando by Federico Babina
Fig.83/84: sketch over Babina's illustration

ELEMENT OF MOVEMENT

The main problem I saw in an open, centralized floor plan was, that there were not enough paths available, except going in circle. As soon as I would set up some walls however, the floor plans looked more like a maze than a home for somebody. For a while, the idea of a maze entertained me, and I did a quick search on the topic of mazes and labyrinths in relation to dementia patients. I had to set aside that thought, as it turns out that tangling up a person in his/her own house would be insensible and bring up frustrations. When researching the architecture of mazes and labyrinths however, I came across a collection of illustrations by Federico Babina. He reimagined and abstracted some floorplans of famous architects into simple geometric backgrounds.¹ The essential structure left often resembles a maze or a symbol, but also strips the architecture down to walls, columns and relationships between them - this relationships being spaces and rooms. I used those graphics to illustrate the concepts of way-leading and my contemplation of structures in the floor plan.

1

<https://www.archdaily.com/791404/federico-babinas-archiplan-illustrations-analyze-the-floorplans-of-master-architects>

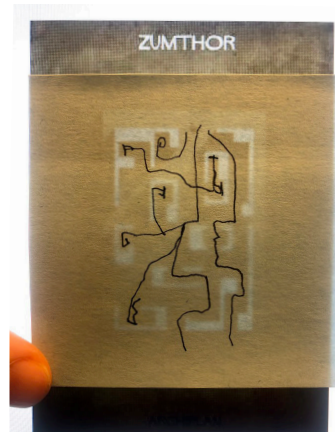
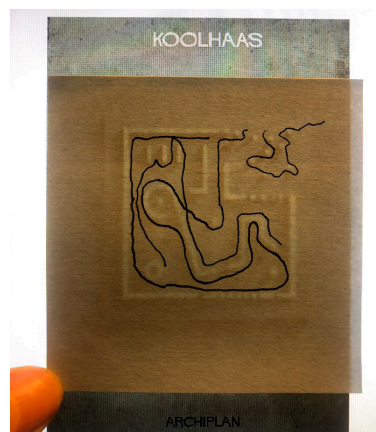
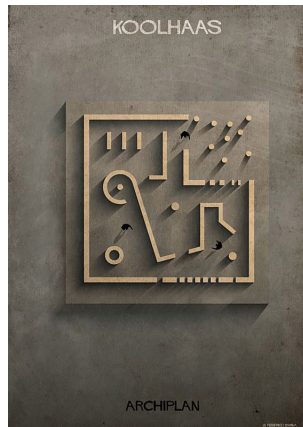
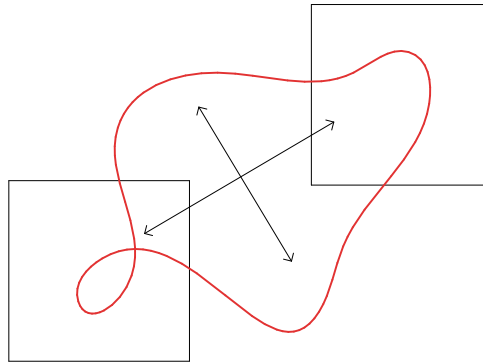


Fig.85/86: Koolhaas/Zumthor by Federico Babina

Fig.87/88: sketch over Babina's illustration

The easiest to follow are curves. At the end of a curve, one does not feel like one arrived to a dead end, unless a perpendicular wall closes the path. When a curve is too closed, one does not bother getting to the most closed up end of it, and skips the small part, if one can already see the next part ahead. But if a curve is long and open, and it brings you to the other side of the layout even, you are more prone to follow it. I extract the curved wall as a basic element of forward movement.

The 90° corners between walls stay untouched - a corner is there for furniture, not for movement. Such corner will be skipped as soon as the other wall is within reach. Columns in one row (Ando) lead forward similarly to a wall, but a field of columns (Meier, Koolhaas) makes you stop and wander indecisively. When there are spaces within the space (Zumthor), they require a conscious act of entering and leaving - visiting destinations and paying less attention to the spaces in-between.



2. STEP

The next step was the decentralization of the house. A path from one part to another, a greater distinction of separate spaces. Better defined exteriors in communication with interiors, and a path that would also lead to the outside instead of circulation inside the house.

From the exercise with the labyrinth illustrations, I extracted the main feature of wayfinding and moving forward, which was for me a curved wall. I set up a curved wall in the design exactly where I would want the resident to move forward, to another, active part of the house - from the bedroom to the kitchen. From the inside to the outside.

But not all walls should encourage movement - some, such as the one behind the bed, should simply provide support and stability to the whole.

A strong wall behind the bed also symbolizes the safety and tranquility. Adding a second back wall, defining the personal space and borders of the private exterior property, provides a kind of a double envelope and also works as a sound barrier. Such second wall might sometimes move closer to the house and create a passage, or open up to the sun and create a garden.

I first wanted to avoid using doors in the design, to achieve a free flow through the space and best possible visibility of all elements and furniture. By opening and closing transitions between different parts of the layout, it almost felt like creating a maze one cannot get out of. The more entangled the layout has gotten, the more I wanted to bring in order and tranquility. I focused on one wall or one curve, which would lead you through the house, rather than many curved walls everywhere.

Fig.89: Concept with two parts and a garden.

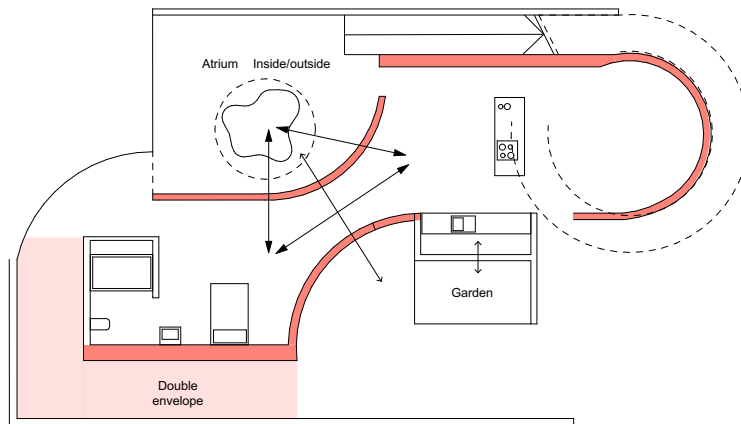
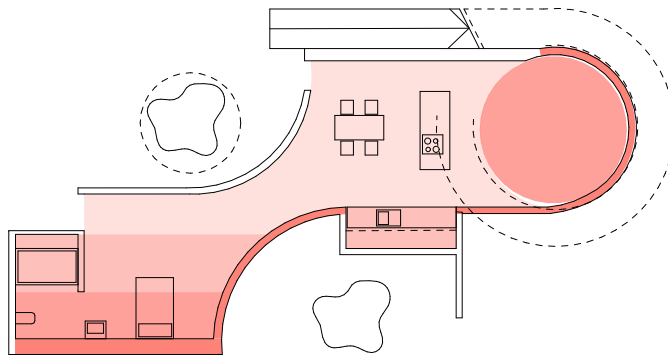
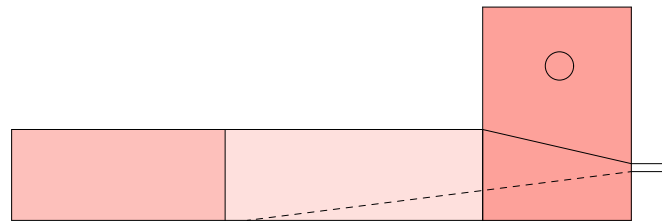
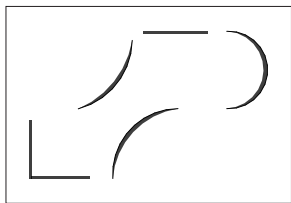
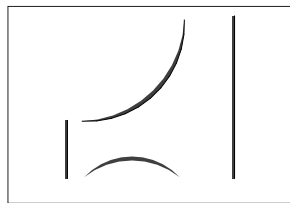


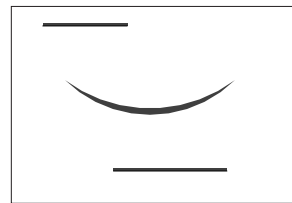
Fig.90: Floor plans



3 curves



2 curves



1 curve

Fig.91: Development of the floor plan



Fig.92: Curve as the element of movement

I reduced the design to single main curved wall in relationship to static, straight walls and other possible construction elements.

The half-circle, a half-enclosure, represents dynamics and movement along the curve on the outside, and sheltered embrace on the inside. The interruption of this continuity in the middle allows transition between the sheltered space and the dynamic space in the otherwise most "sheltered" or most "dynamic" point on the curve.

I wanted to investigate this transition of the room in the inside and outside of the curve, base the contrasts of different atmospheres on where they lay along the curve.



Fig.93: Inside to outside of the curve



The path guides through spaces of dynamics and calmness, between warm and cold, outside and inside. Once at the top, one can overview those spaces he before experienced directly. This time from another perspective, from the distance. Once seen all at once, they can be better understood.

Fig.94: the ramp

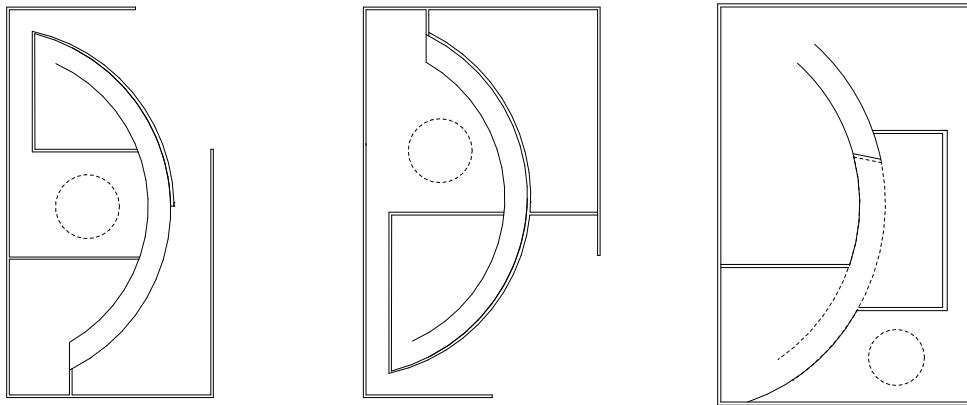


Fig.95: Development of the floor plan

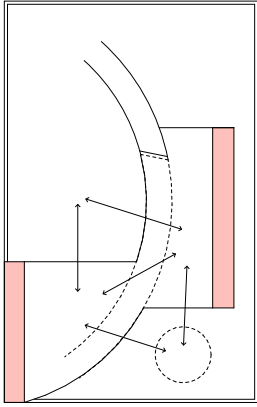


Fig.96: Conceptual diagram

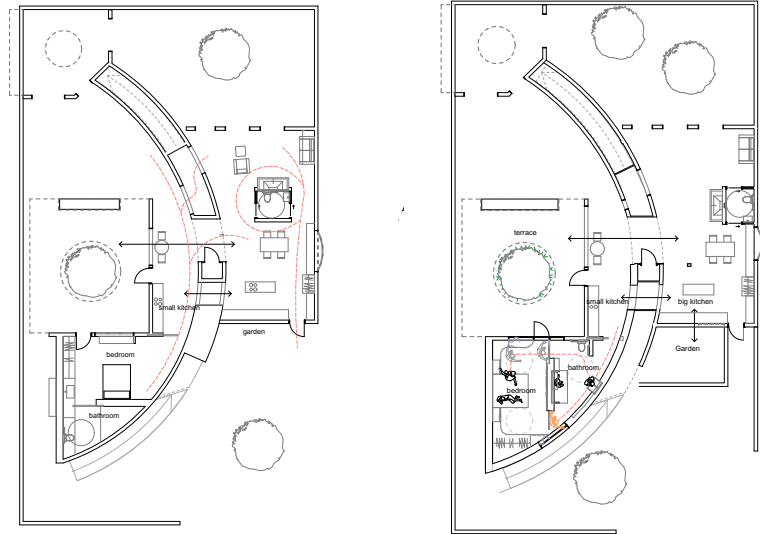


Fig.97/98: Floorplans with different space configurations

3. STEP

I built around the continuity by the curve - the curved wall leading the way from the bedroom to the main area, with the transition to the dynamic side of the curve in the middle, to the active part of the house. There, I tried out the concept of "isles" in the bigger room, allowing the circulation around them in an open space. Yet when I pushed more functions to the wall, I achieved a better separation of the big space and more niches. The ramp was to go from the garden, through the house and onto a roof terrace of the pavilion, with the only view out of that side of the walled garden.

In both cases above, while following the curved wall to the bedroom, one only arrives to the bedroom but cannot continue on. I tried to solve that "dead end" by setting up a wall in the middle, which allows circular movement back to the atrium or the main area. However, the final corner of the curve still felt inconclusive. First I thought of adding a door at the corner, but that door would only lead to the exterior wall and sort of stop the movement forward as well. Besides, a wall behind the bed should be the security- and stability-giving wall, and this symbolism would be ruined by an opening such as a door.

The continuity is also a problem with the ramp ending on a small terrace, with the only possibility of turning back. Another thing bothering me was the ramp beginning in such unclear corner. Coming at it from the garden, one can see it from afar, but coming through the narrow part behind the bedroom, following the bedroom wall around the corner, a sudden floor change would be very surprising. This narrow part is also darker than the open garden, which means arriving through it, human eye needs some time adjusting to the change in brightness.

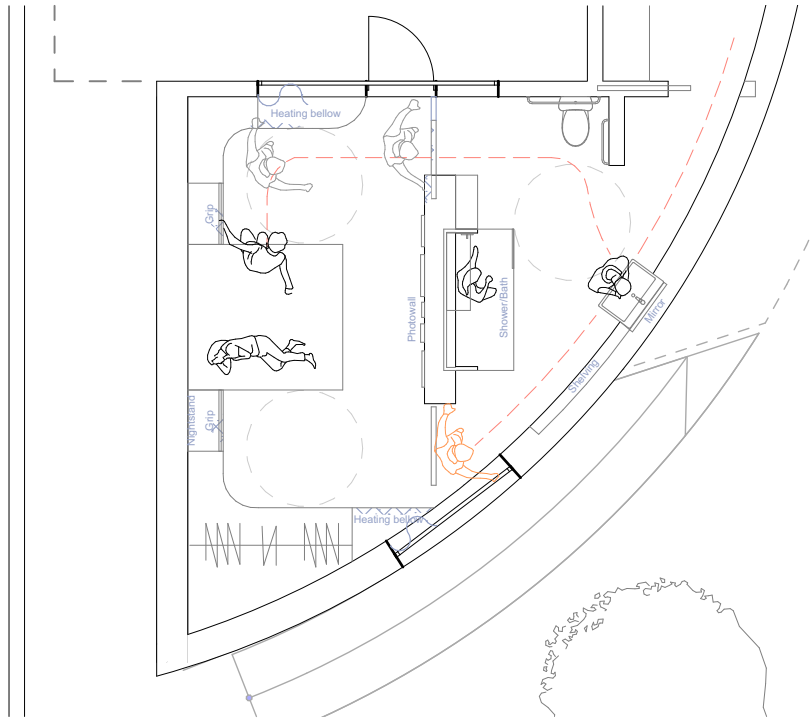


Fig.99: Bedroom and bathroom

BEDROOM/BATHROOM

At first, a practicality of such floor plan seemed to go well with the daily routine - after waking up, one can wander through the bathroom to the main part of the house, and in the evening in reverse. Nonetheless, I decided against it because of the character of bathroom in general - the odors you want to block out of other parts of the house, the wet floor unsuitable for a walk-through, just as well as the lack of privacy if the case of two or more residents.

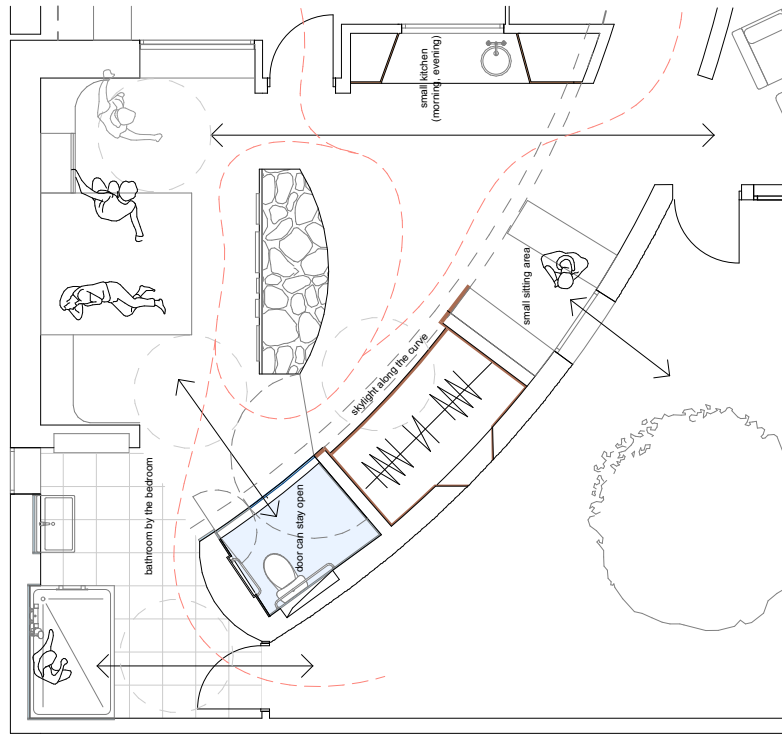


Fig.100: Bedroom and bathroom

Laying on the bed, to the left, one sees the tree in the central atrium, and essentially your own garden with the rest of the house in the background. Once standing up on the left side of the bed, one finds itself in the visual axis to the other part of the house, which prompts movement forward. On the right side of the bed, the main direct visual connection is the WC implemented in the wall under the ramp. Next to it is the sink, and next to the sink a shower/bath, which, again, has a visual connection to the outside, but also to the inside along the curved wall.

Later, I decided to use the space below the ramp for a sitting niche rather than wardrobe space. I wanted to keep as much of the curved wall, and the sitting area in the floor plan above dissolves the curve completely. In a model, I tried out how a sofa would work in a niche in the wall, coloring it bright red for the sake of wayfinding and for the contrast to the rest of the wall. I also decided against the small kitchen and instead let as much light in as possible, through arched windows, reminiscent of arches surrounding old castle yards.



Fig.101: skylight along the curved wall



Fig.102: clay model

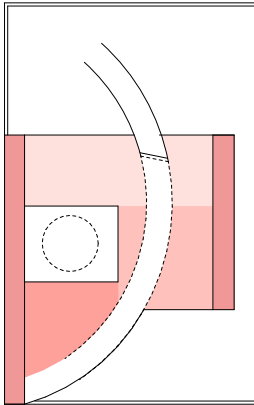


Fig.103: Conceptual diagram

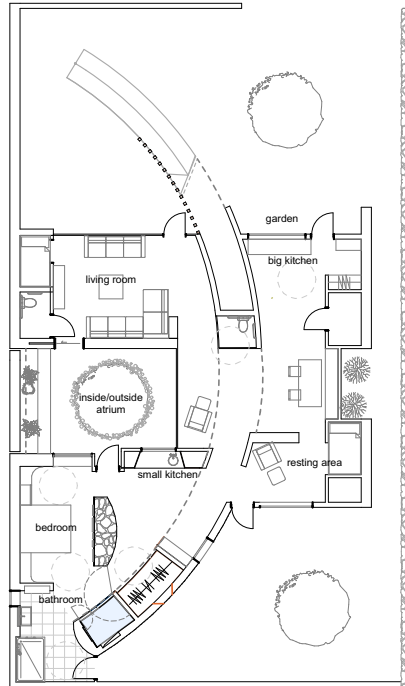


Fig.104: A Floor plan with more interior space.

4. STEP

The ramp is turned around, with the beginning set in the open garden, and the end up on the roof of the house itself. The space below the ramp is used for different functions. The dead corner is solved with a bathroom which opens up to another, "private" part of the exterior - circles in another direction. The bedroom is pushed to the wall, against the natural landscape. This part seamlessly continues into the natural terrain, giving the bedroom sort of a half-caved-in feeling. Dug in, surrounded by earth and covered with green roof, makes this room well sound-insulated, calming and colder.

Including the sloping terrain to the design also goes well with the idea of the ramp - which can now continue over the roof, into the nature.

This floor plan is larger, because I wanted to define the main living room and a central atrium. Later, I reduced the size of the building in order to make it better manageable and shorten the paths between functions.

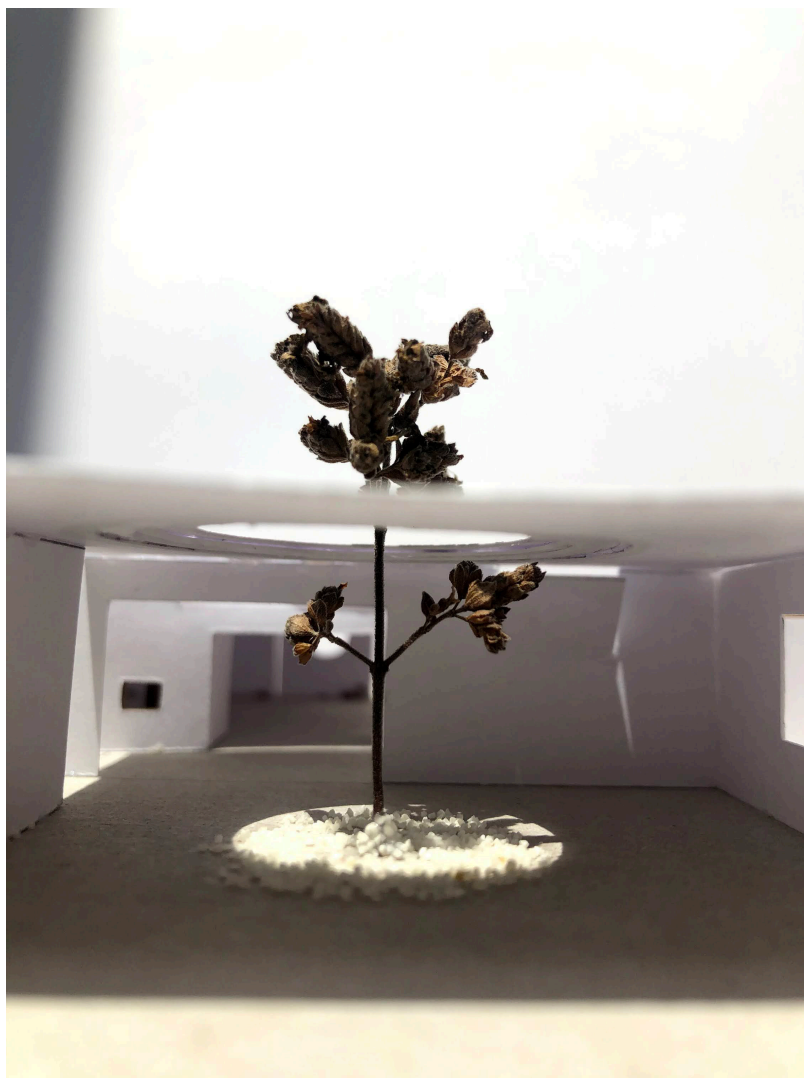


Fig.105: Patio in the model

KITCHEN, ENTRANCE

While in some spaces, the main focus is on the atmosphere and aesthetics, in other rooms, practicality steps into the foreground. For instance, the kitchen must firstly be functional and accessible. I tend to position the kitchen by the main entrance of the house, for more reasons: the connection with the herb garden outside, bringing in groceries from grocery shopping and not having to carry them around the house, eating outside, ventilation, looking out while cooking... It is also the least private area of a house in a way, and space for socializing while cooking for or with friends.

The entrance area is tricky, because I would personally prefer a separate entrance room with a closet for coats and enough space to leave dirty shoes. However, in this house, I did not want to create a second barrier between inside and outside, in an effort to encourage the resident to

leave the house without it presenting a "project". That is why I decided for a less-defined entrance area which allows effortless transition to the outside, to the garden. To prevent wandering out on the street, the house entrance and property entrance are not aligned in the final design.

The process of putting on shoes can be more demanding for the elderly than one might imagine. While reaching down to the floor and staying in that position for longer (tying the laces), and then abruptly standing up, one can quickly lose balance and fall. Therefore a place to sit down comfortably is necessary. The coats and jackets hanging out in the open are also preferable to a closed closet, because they are well visible for the person leaving the house. So, the person is reminded to put on a jacket and not leave underdressed.

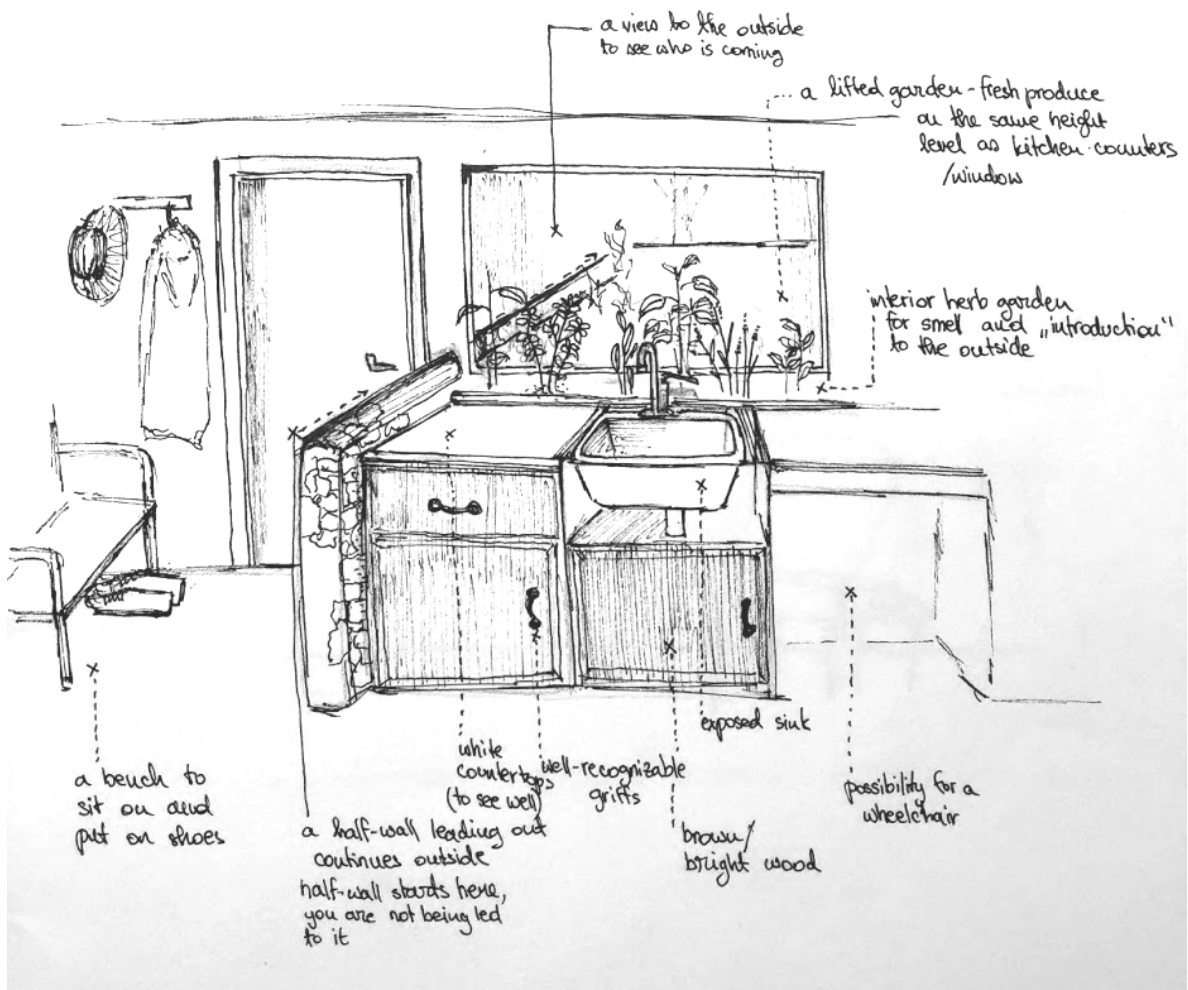


Fig.106: Sketch of the entrance and a part of the kitchen

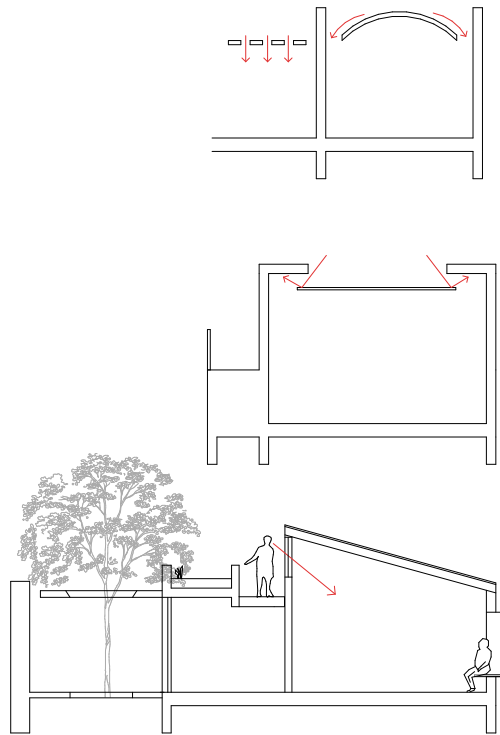


Fig.107: Sections with different roofing scenarios

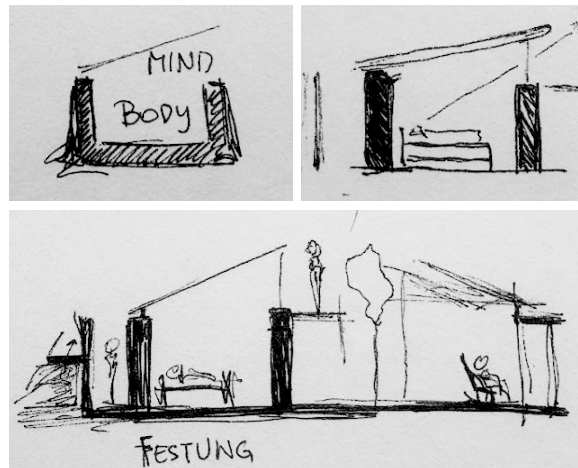


Fig.108: Sketches

ROOFING

In the model, I experimented with different forms of roofing for different scenarios. Over the bedroom, there is a green roof on the level of the green landscape to which one arrives from the ramp, despite first considering a more dynamic, sloped ceiling. A skylight along the curve illuminates the curved wall. I also added a skylight over the kitchen counter for better visibility of the working surfaces. For the visual connection between the ramp and the interior, a part of the house needed to be higher. To emphasize the dining area, there is a barrel vault ceiling above the dining table, with a round window on each side. Retrospectively, this created a highlighted axis, dividing the house, which was not intended.

In the kitchen area, a visible wooden construction, reminiscent of old farm kitchen, seemed suitable. I find such farm kitchens particularly interesting, because the wooden construction can be turned into furniture for hanging kitchen utensils, drying fresh herbs or putting up ceramics all along the wooden beams.

In the living room, in order to achieve a calming atmosphere, diffuse/indirect lighting from shifted skylights is applied all around the room. The patio is covered with a horizontal slab with a round cut-out/skylight for the tree, which created another interesting moment between exterior and interior.



Fig.109: Paper model

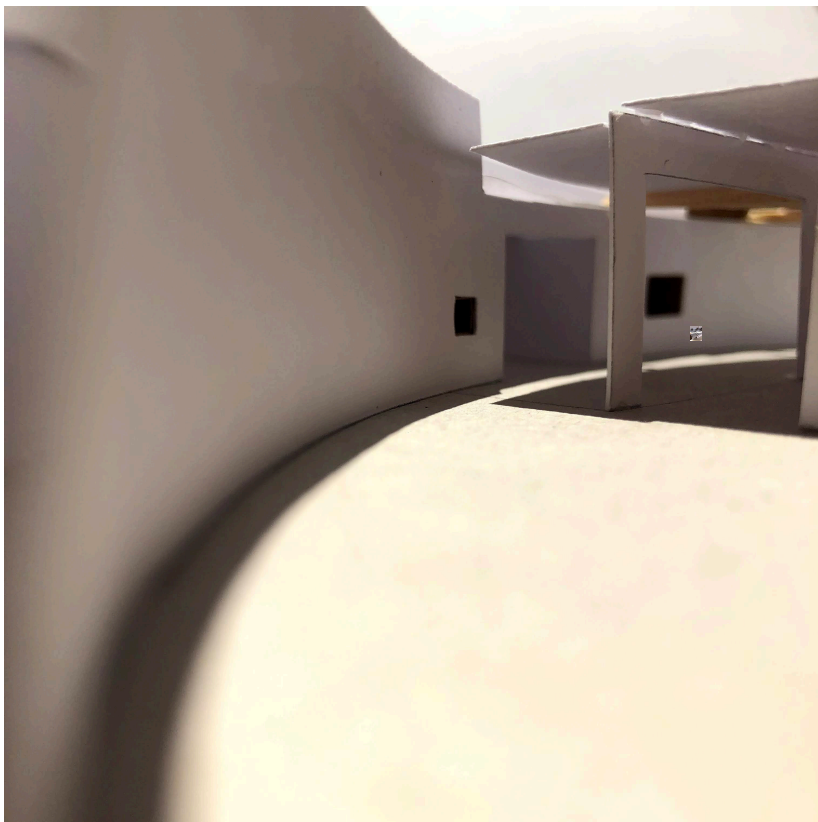
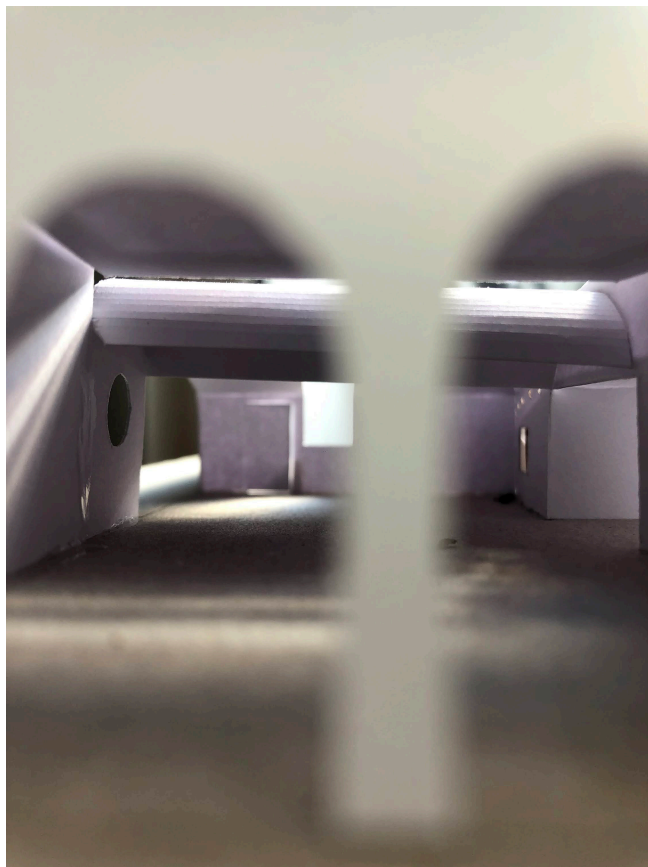
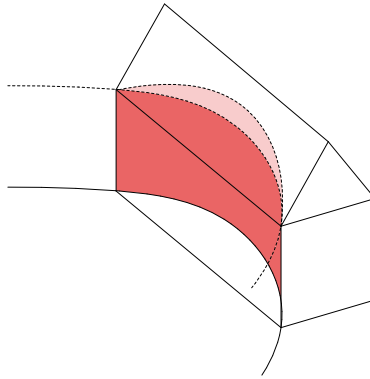


Fig.110-113: Different situations and light



Finally, a uniform roofing was applied for the whole main part of the house, to connect it visually into one homogeneous structure. A traditional gable roof is the most common in Austrian or Slovenian architecture. It is also the generally understood icon for "home" - a triangle on a square. Supposedly, a person would sooner recognize a house with a gable roof as a home, than an unfamiliar, experimental design that my model turned out to be.

Cutting a sloped surface of the gable roof with a curved line produces a cutting curve, which is in elevation similarly curved as the original cutting curve in the floor plan.

Geometrically speaking, if the half-circular curve through the house would be a part of the imaginary cylinder, then the section of the cylinder with the plane, not parallel to its basis, would produce an ellipsis. Meaning, that the curve generated by such cutting of the roof is a part of ellipsis, also in the elevation.

The large elliptical cutout, serves perfectly as the bright focal living area in the middle highest point, and is also instantly recognizable from far away. This vertical reflection of the floor plan in the house and its appearance convinced me immediately.

Fig.114: Schema of a sloped roof with elliptical cut-out

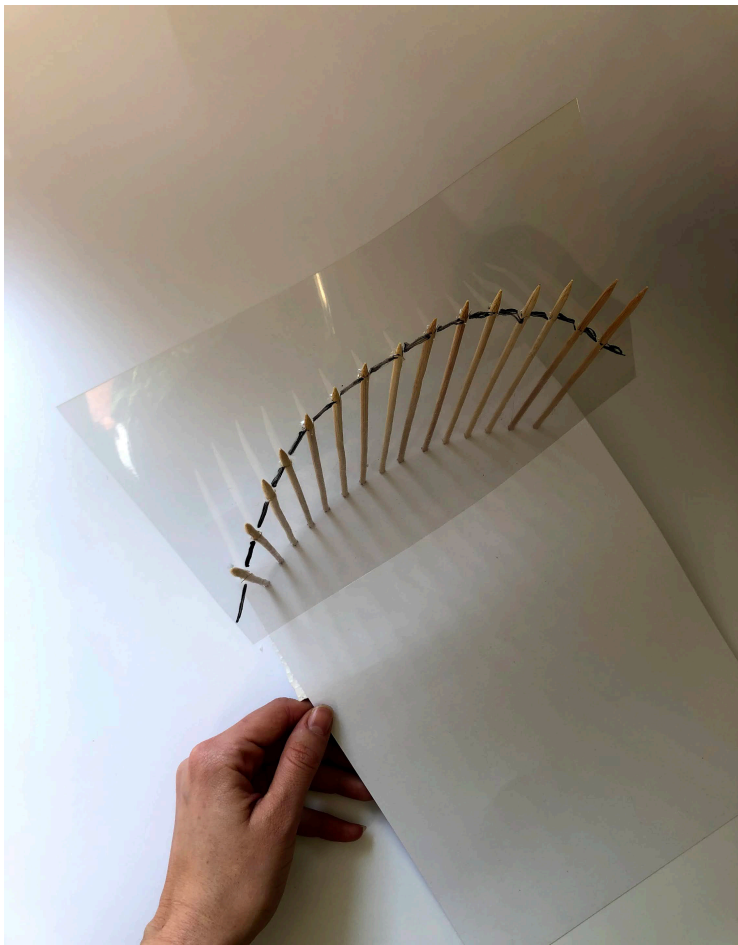
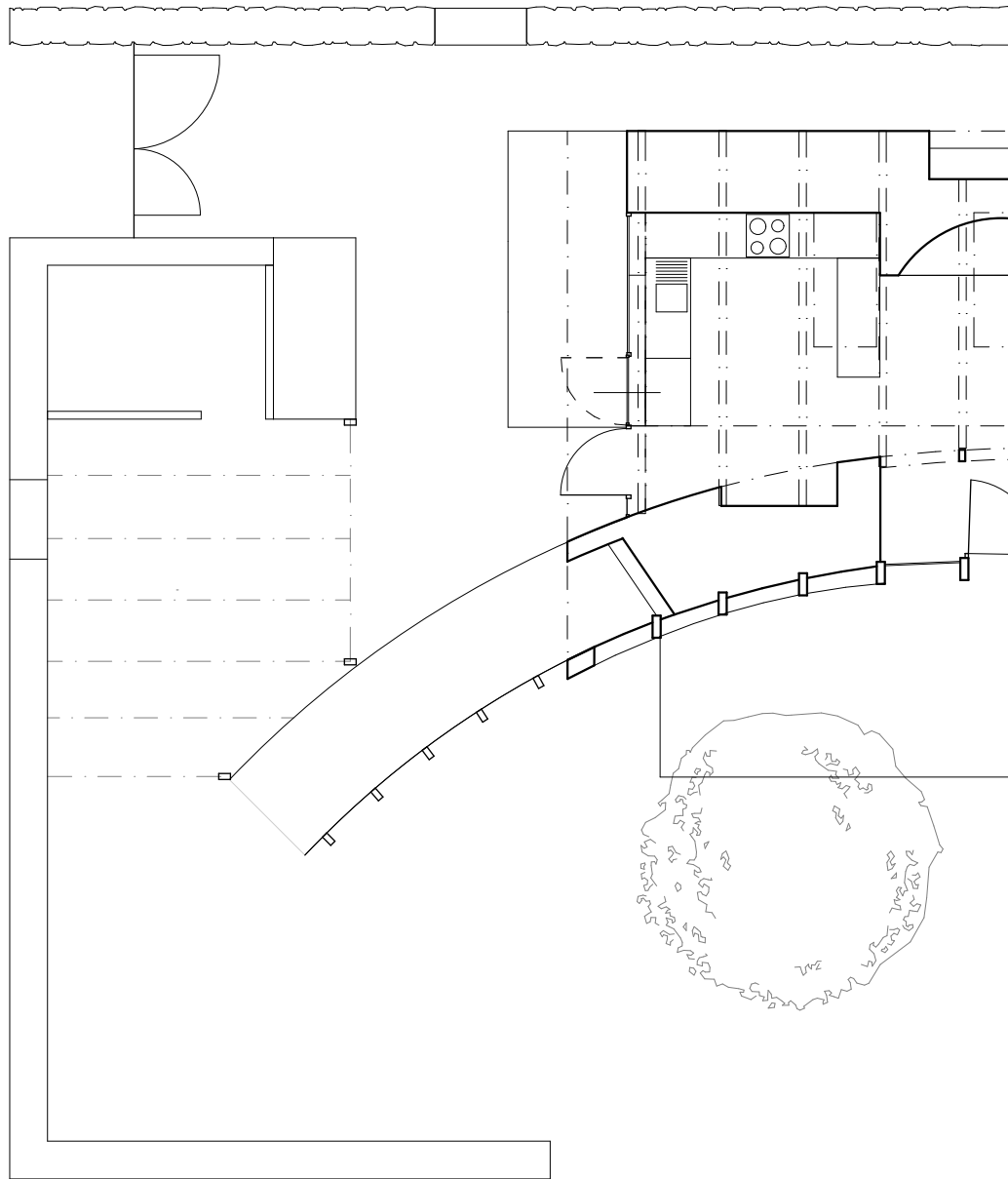


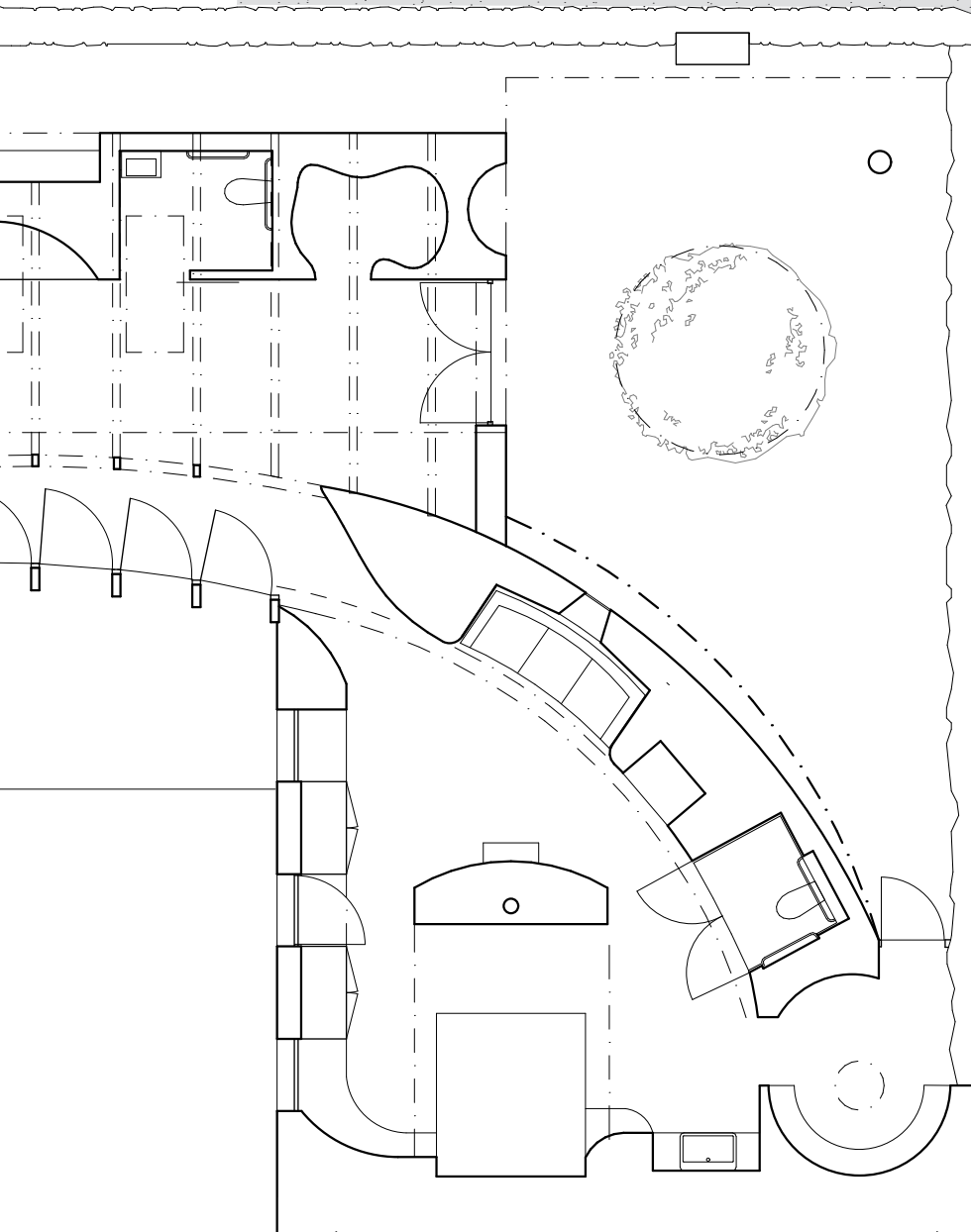
Fig.115-117: The cut surface in a model

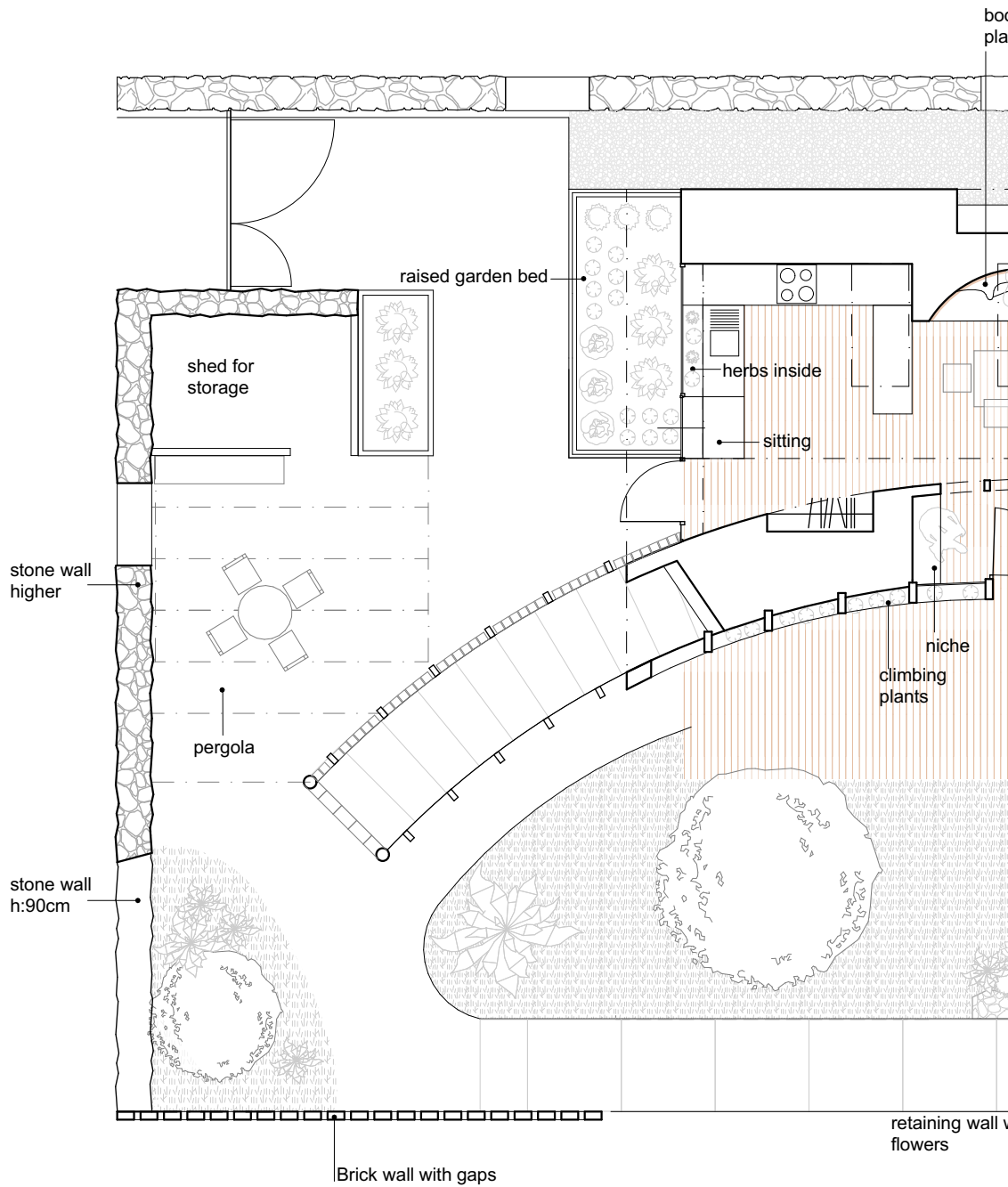
DESIGN - Concept - study





Floor plan 1:100





Floor plan, detailed 1:100

dy-fitting shape in
ster, padded

softly padded

arched door

color-changing light

space dividing
wood slat wall

resting area
/landscape

wood
surface

"handrail"

typical couch

rough
surface

photowall

blue tiles

glass, up to 1.2m
stained; with blinds

blue door

handrail
towel drier

rough
surface

pond

with

wood

stone

plastered
white wall

lighting and shelving
integrated in the wall

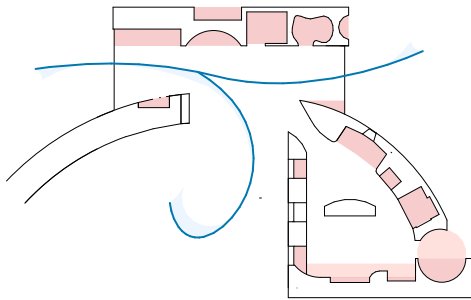
sitting

N

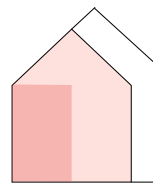


DESIGN

Final concept



Schematic diagram of openings and closures



schematic section

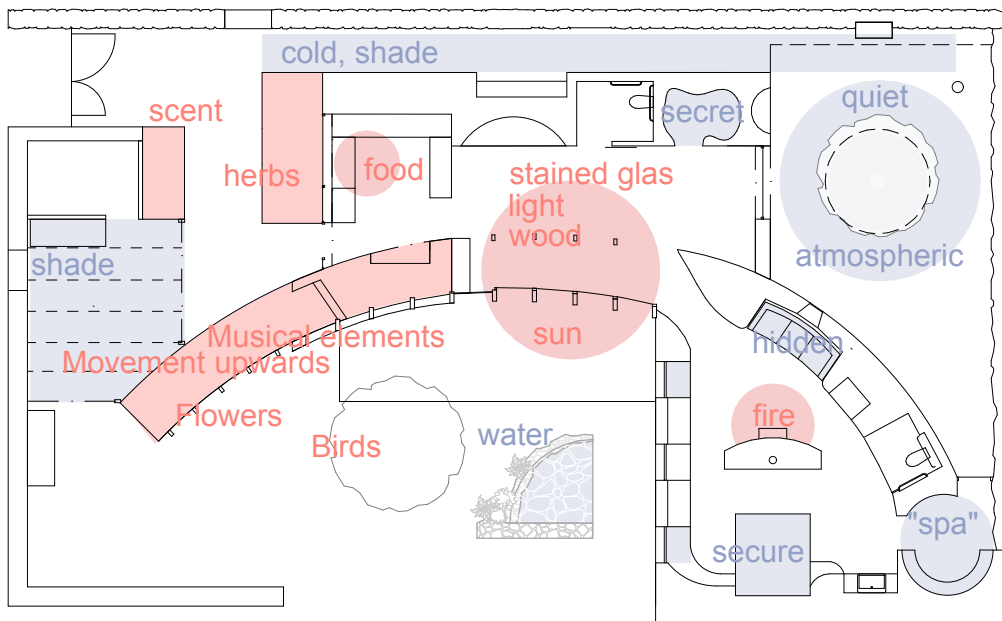
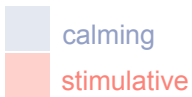
The elementary parts of this house play with openings and closures, with contrasts between small niches and open airy space. The contrasts appear not only between solid functional walls and open space, but also between both parts of the house: the bedroom with bathroom and small living room on the "inside" of the curve, and the main living area with the kitchen on the "outside" of the curve. The bedroom area is enclosed, with tiled floor, lower ceiling and only a few openings to the outside, whereas the main area is characterized by an open, bright space, primary and secondary exposed wooden construction, tall ceiling and large openings to the outside.

The ramp separating both parts of the house, travels through the house between two sets of wooden pillars. The outer layer of wooden

construction gives shape to the house itself, and the inner layer is the smaller version of the outer one, creating a feeling of a house-in-a-house with the ramp as the buffer zone.

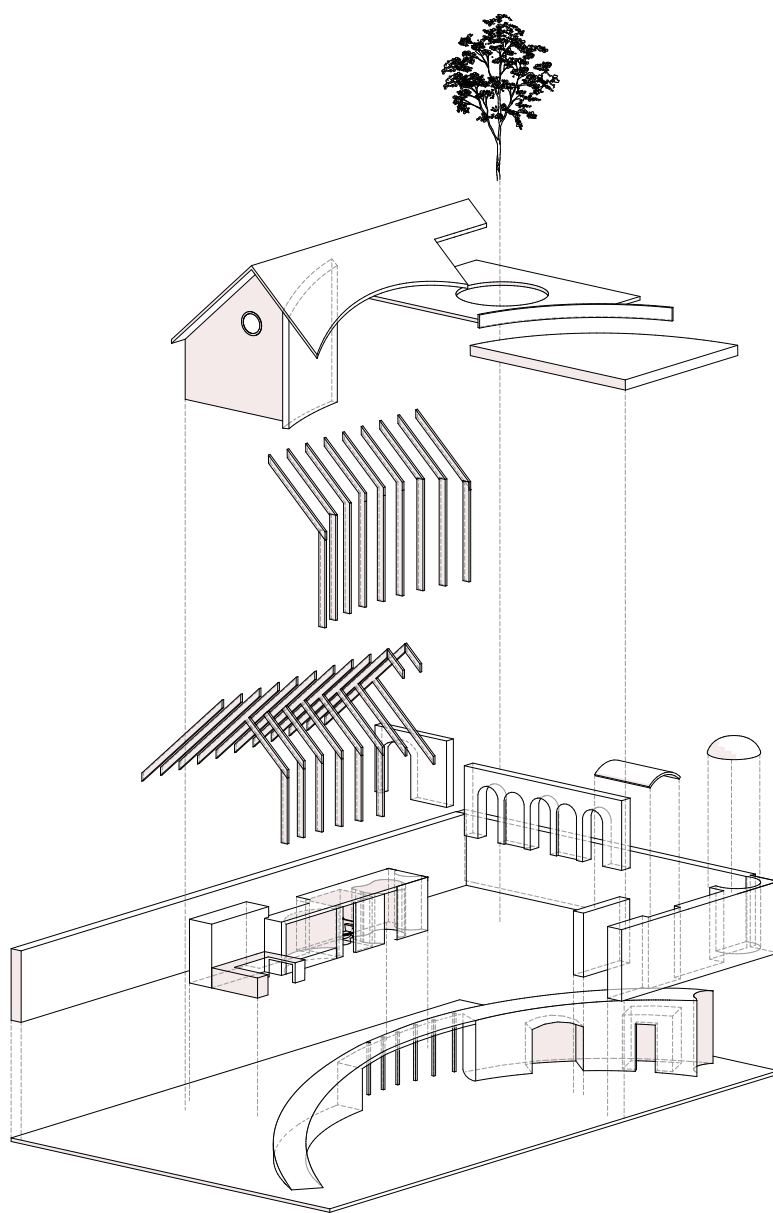
The niches and cut-outs in the three main walls, as well as the curved ramp, are variable in shapes and functions, such as a toilet, a softly padded "hidden room" and a round shower, but also simple sitting or storage areas.

Even the elevations of the house show different faces in different directions, with the curved shape of the floorplan reflecting in the south.

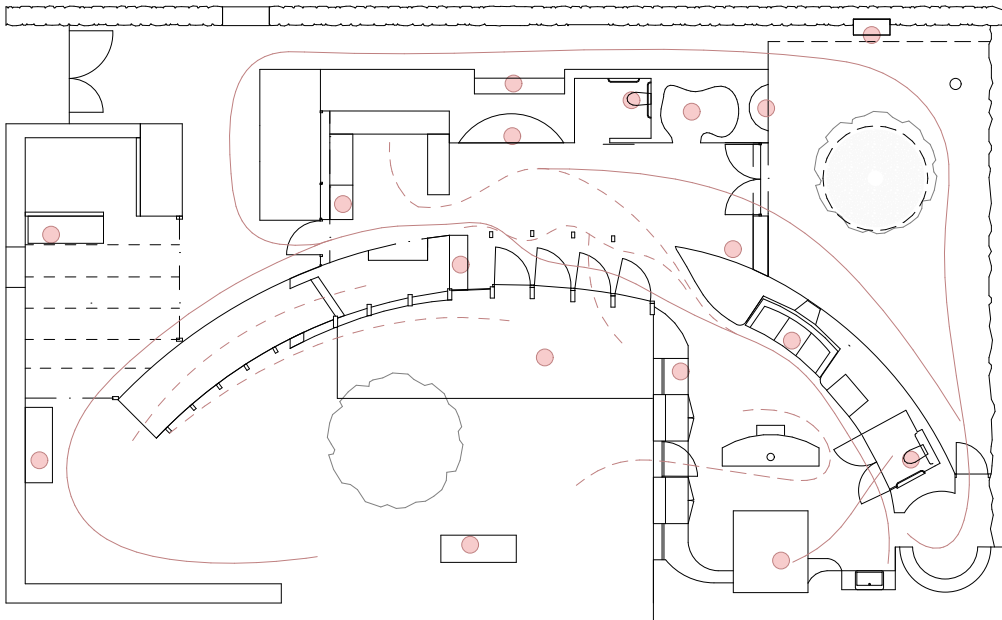


The house is full of different scenarios, each corner can be considered a destination with a distinct character. There are areas with less stimuli, such as a long walkway behind the house, while along the curve, one passes by more stimulative elements at once.

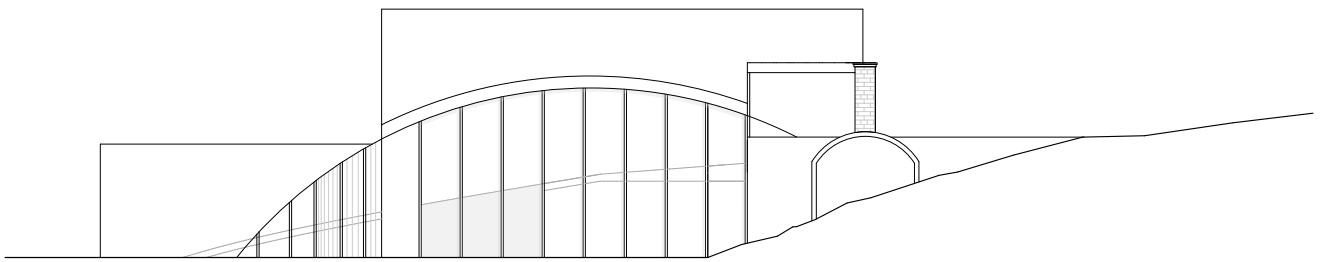
floor plan of sensory elements, 1:200



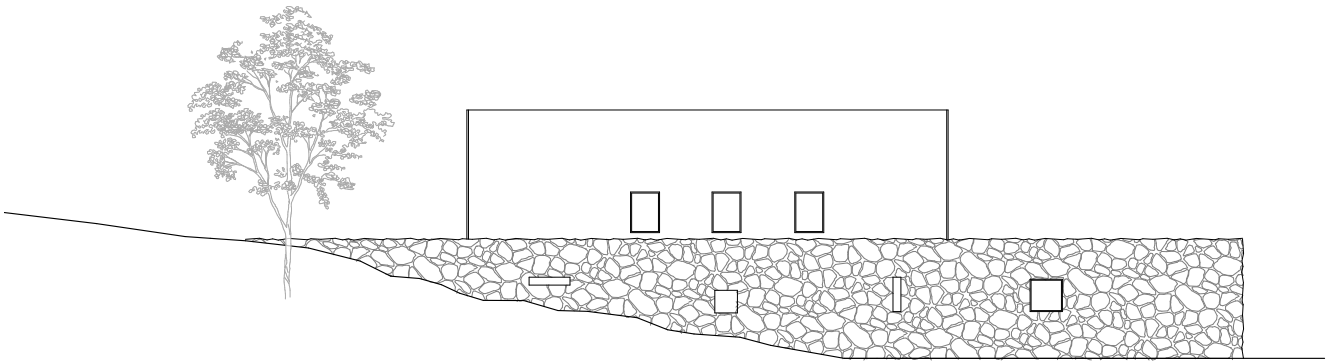
- rest
- walk



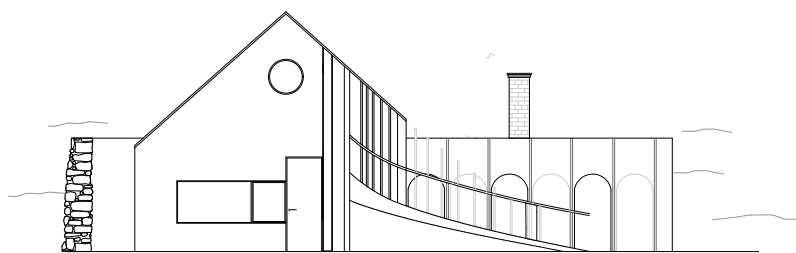
floor plan of paths and stops 1:200



South Elevation 1:200

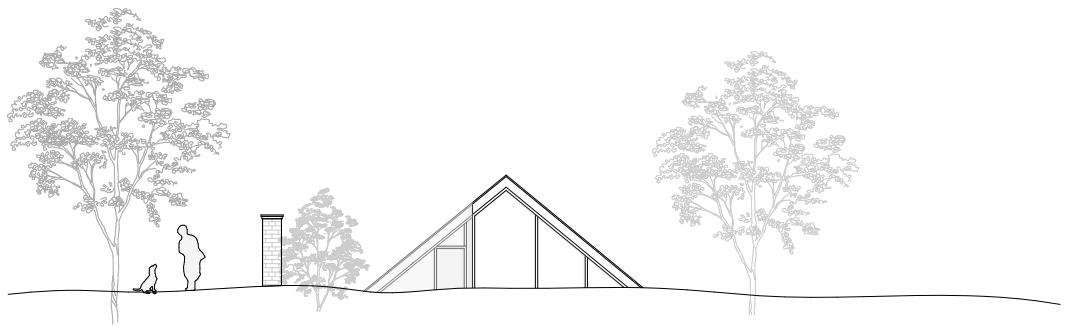


North Elevation 1:200

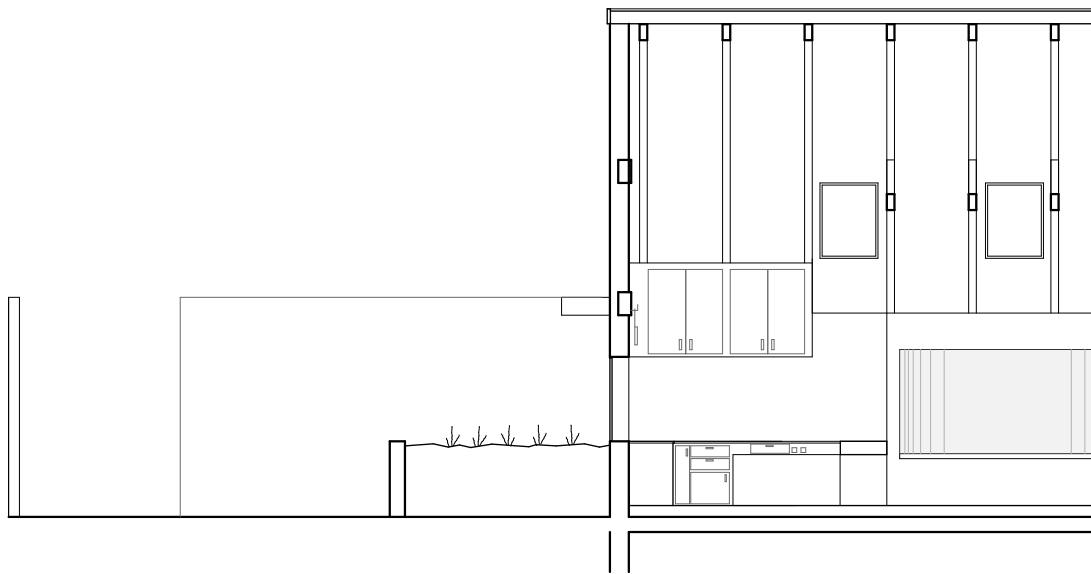


West Elevation 1:200

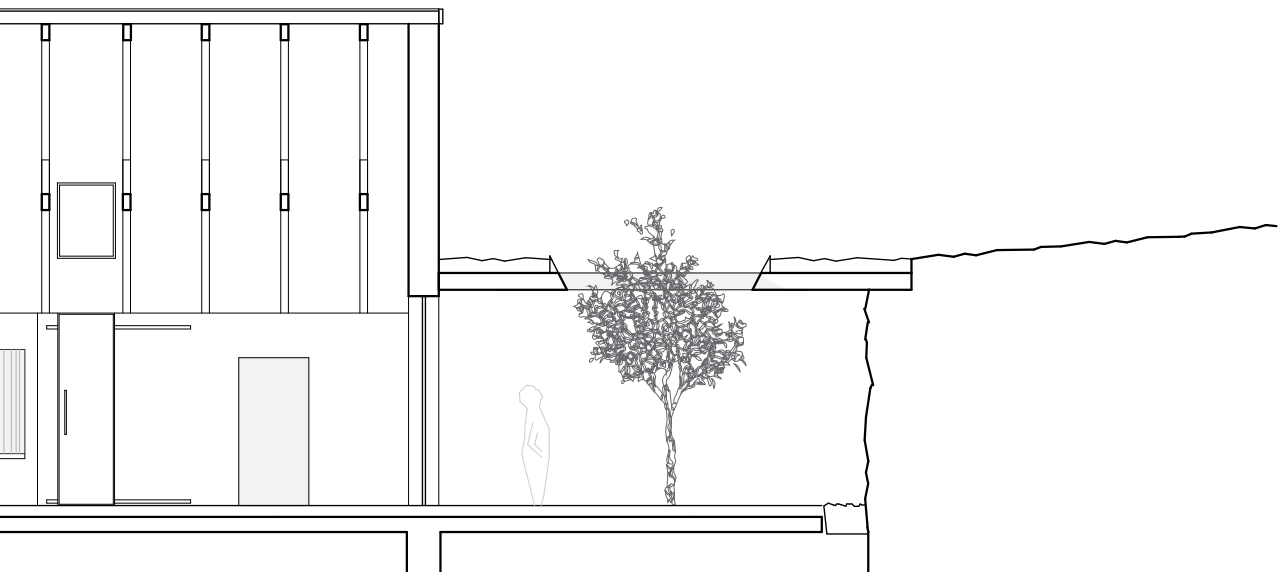
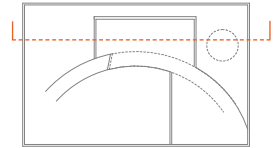
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East Elevation 1:200



Cross Section 1 1:100



Section through the ridge of the roof with an elevation of one of the main "functional" interior walls, with the kitchen, sitting niche, wc and a hidden niche. On the right is the patio with a round open skylight over the tree.



Fig.118-120: material concept; (clay) plaster, wood and stone

MATERIAL CONCEPT

As anything in the house, the materials reflect the play of contrasts. The surfaces one walks or works on are kept bright, as well as most of the walls.

WOOD

Wood as a building material has many advantages. Its stability, high strength for its weight, accessibility, sustainability and visual appearance make it a material which can be used for the construction, as well as for interior exposed surfaces. Wood is known to emanate warmth into the room atmosphere. In the project, wood is applied and left exposed for the space-forming construction of the house, the construction of the roof with paneling, as well as flooring in the main space and the terrace. It is also applied as furniture and paneling around the interior. Brighter species such as oak, spruce or larch, in an execution with less visible fibres are used because of the need for good visibility and avoidance of confusing patterns.

BRICK AND CONCRETE

For the construction of the house, brick should be used wherever possible. This traditional building material of the region (next to wood), also possesses many advantages. Its warmth storing capacity makes it possible to exclude additional isolation layer in thick brick walls.

However the construction of the ramp and some more constructually difficult areas demand the use of a material that can also withstand push and pull forces, and overbridge a larger distance; such as reinforced concrete.

CLAY

All around the world, clay is applied in building in different compositions and forms. It is also easily attainable on site as a part of excavation material. Its appearance is dependent on the ground and sand composition on site. Clay plasters are dry and can absorb moisture, they also have a beneficial effect on the acoustics in the room and because of their lower electrostatic charge, rooms tend to attract less dust.¹ Different execution of the plaster can

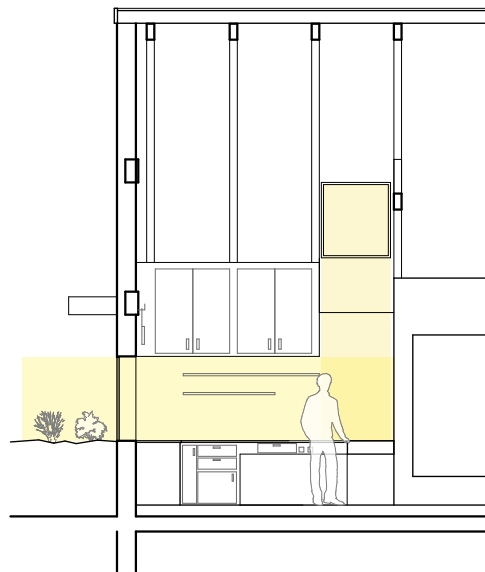
bring additional texture to the interiors. It can act as a rough surface, but also smooth and even slightly reflective.

STONE

Raw stone surfaces would usually not be considered for functional surfaces in houses of people with visual impairment, because of their irregularity in color, texture and shape. However the tactile sensation of a stone wall is nevertheless a considerable enrichment of interior or exterior space with otherwise prevailing smooth surfaces. Stone is mostly used for the property walls outside, but also inside - the central wall with the fireplace, or as paneling in niches and details around the house. In a smoother, brighter form, stone is used in flooring of the bedroom and the pathways in the garden.

1

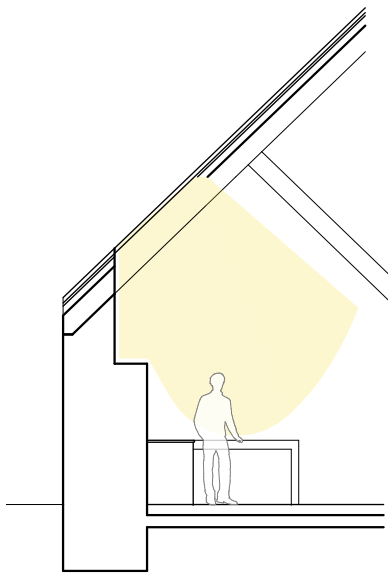
Vgl. Rauch/Kamfinger, <https://www.lehmtonerde.at/>



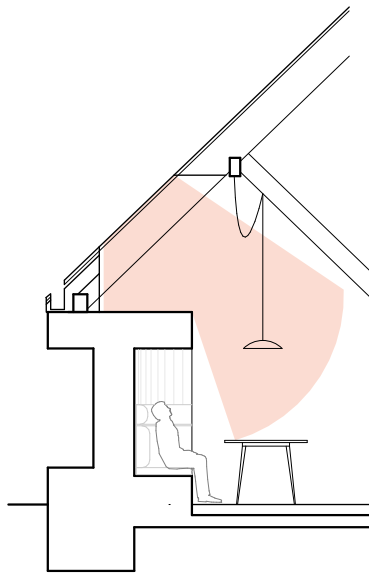
Section kitchen 1:100

THE MAIN SPACE

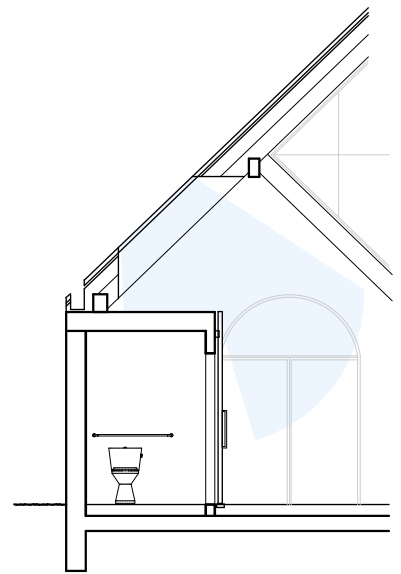
The garden on the height level of the kitchen counter, with a large window. The skylight rounds-up the kitchen and illuminates the working surface and the kitchen isle. The kitchen has a tall ceiling with exposed, minimalist wooden construction, as well as a round window higher above. This is the first area one arrives at after entering the house and is fused with the entrance area. .



1: Kitchen isle



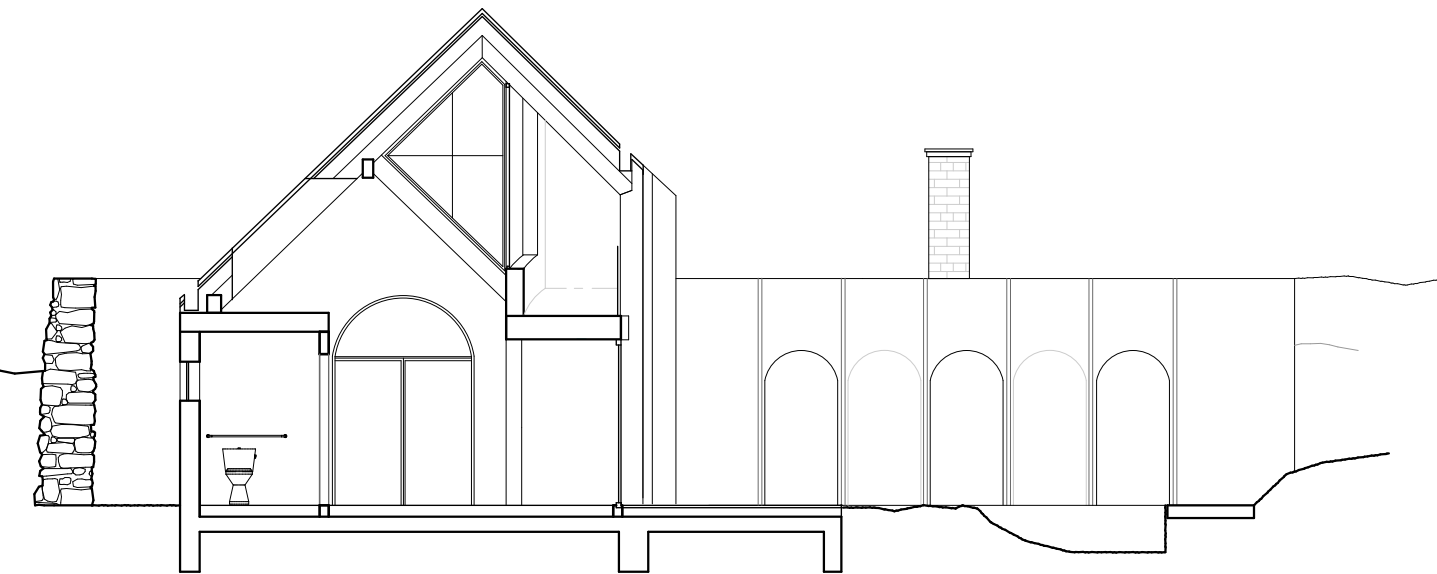
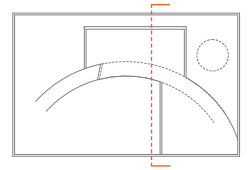
2: Dinner table



3: WC

Sections through 3 skylights 1:100

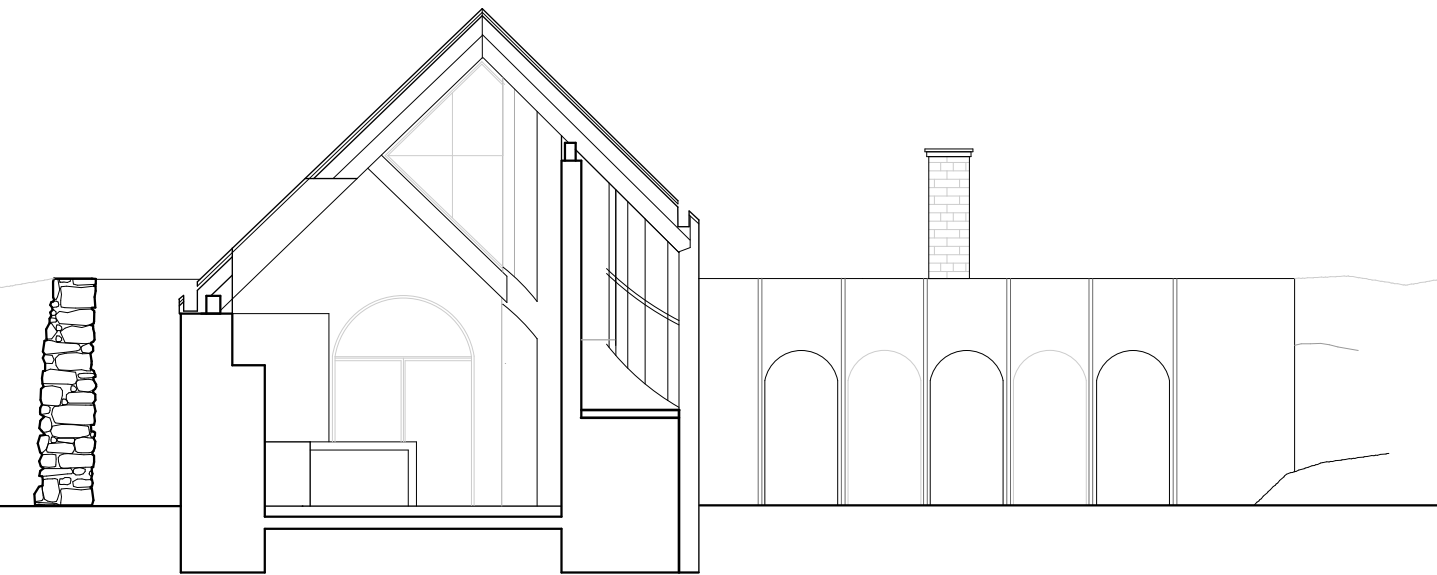
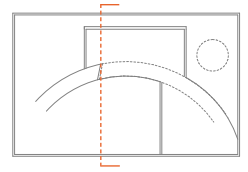
Subtle color changes in the glass of the skylights colour-mark the three areas below.



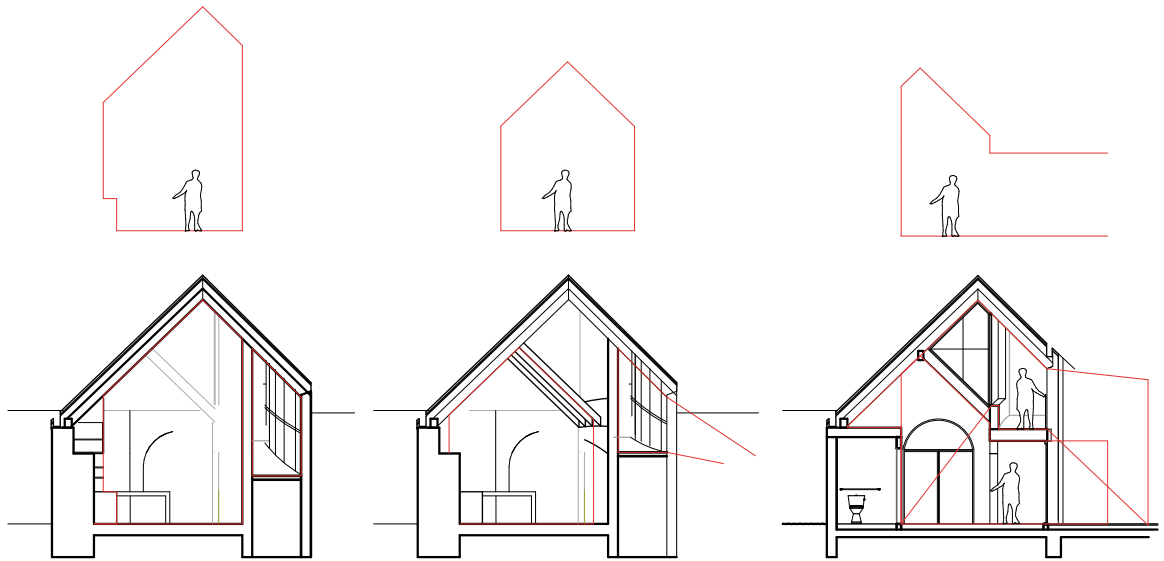
Section 2 1:100



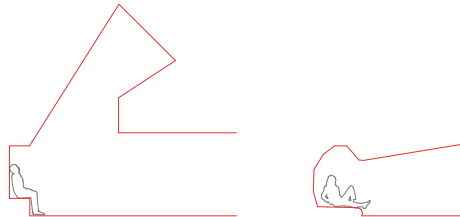
Fig.121: The main area with the double wooden construction and a ramp



Section 3 1:100

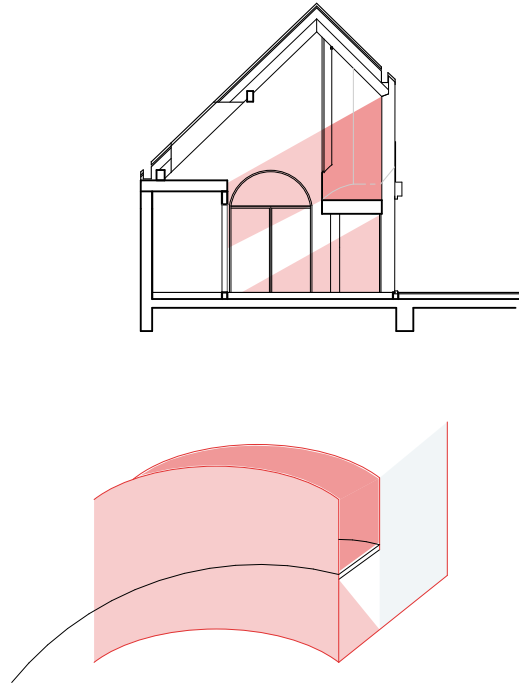


Sections with different perception ranges 1:200



Perception ranges in two niches 1:200

The red line marks the area one perceives from a certain point in the room. The rafters of the secondary roof construction might, for example, be perceived as a lower roof by gestalt principles, and therefore the house smaller. From the sloping ramp, one perceives the house through the secondary construction. In a "hidden niche", one is in a smaller, individual space, and does not perceive the house itself. The bottom part of the roofing construction (opposite of the ramp) disappears behind the wide bearing and "function" wall with niches and the toilet. From the standing point of view on the ground, one therefore does not see to what extent the roof continues. The wall seems like a box, placed in the room - like a furniture element.



THE RAMP

The ramp is the central sensory element of the house. Besides being the element of upwards movement, it is also a transition between the private outdoor space, private indoor space and common outdoors. The space of the ramp is firstly open (garden), then partially open on the way past the wire railing, then shortly closed on both sides by a wall, then open to the outside from a noticeably higher perspective, suddenly also open to the inside of the house with a view to interior and exterior, finishing on the open again, but this time on the roof - in a whole different scenario (schematic sections P 174-175).

Multi-sensory experience can be enhanced with, for example, thin wire railing one can strum on when walking by; pipes one can play on like in xylophone pavilion, climbing plants on the railing and the shade they throw, the rustle of leaves in the wind, their colorful flowers and bugs flying around them; colorful stained glass windows, also throwing a colorful shade on the inside of the house.



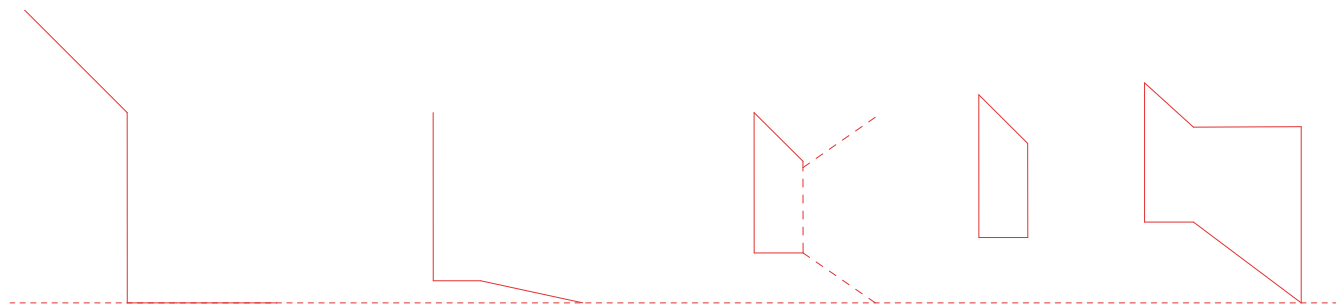
Fig.122: The railing on the balcony of the Os house



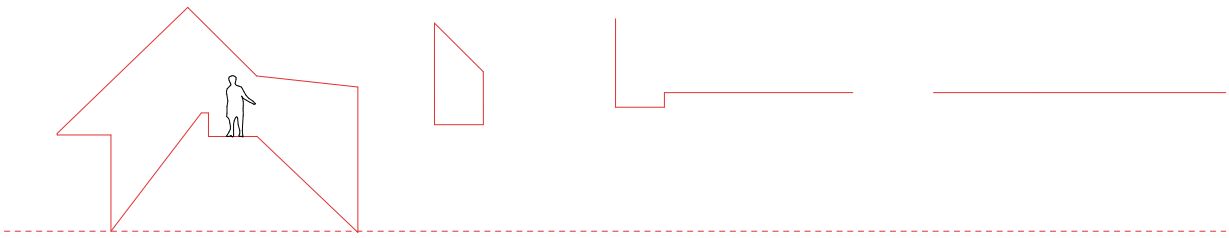
Fig.123: The pipes of the Xylophone pavilion

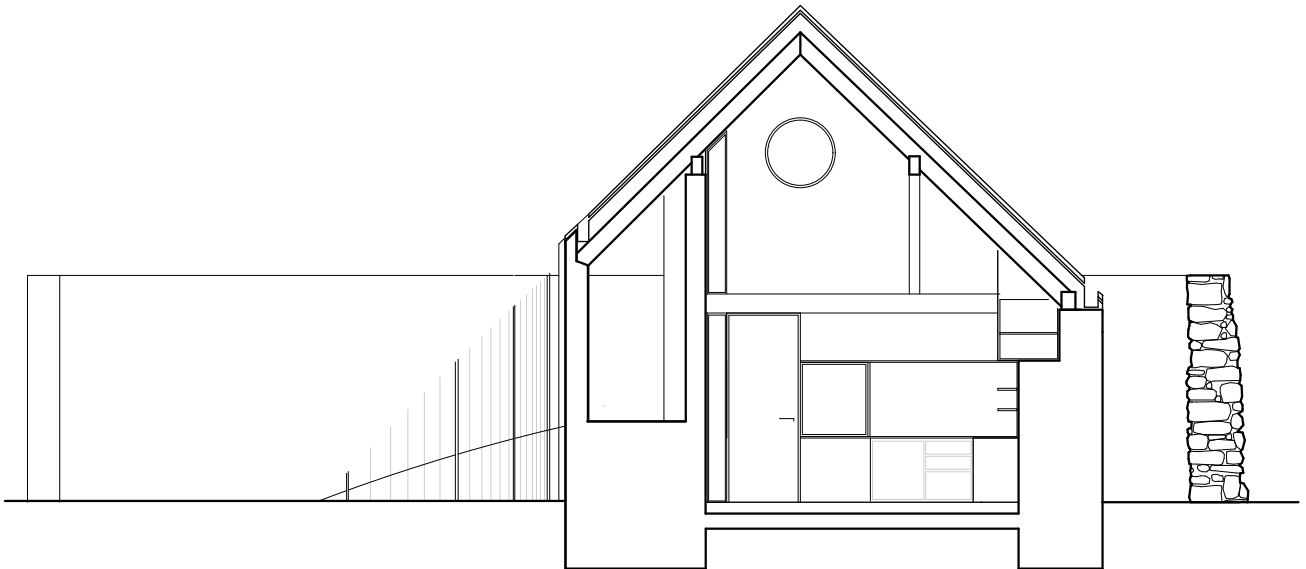
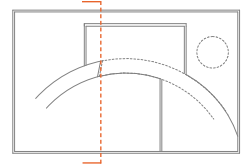


Fig.124: Climbing plants in Graz



Schematic sections of the perception range on the ramp, 1:200

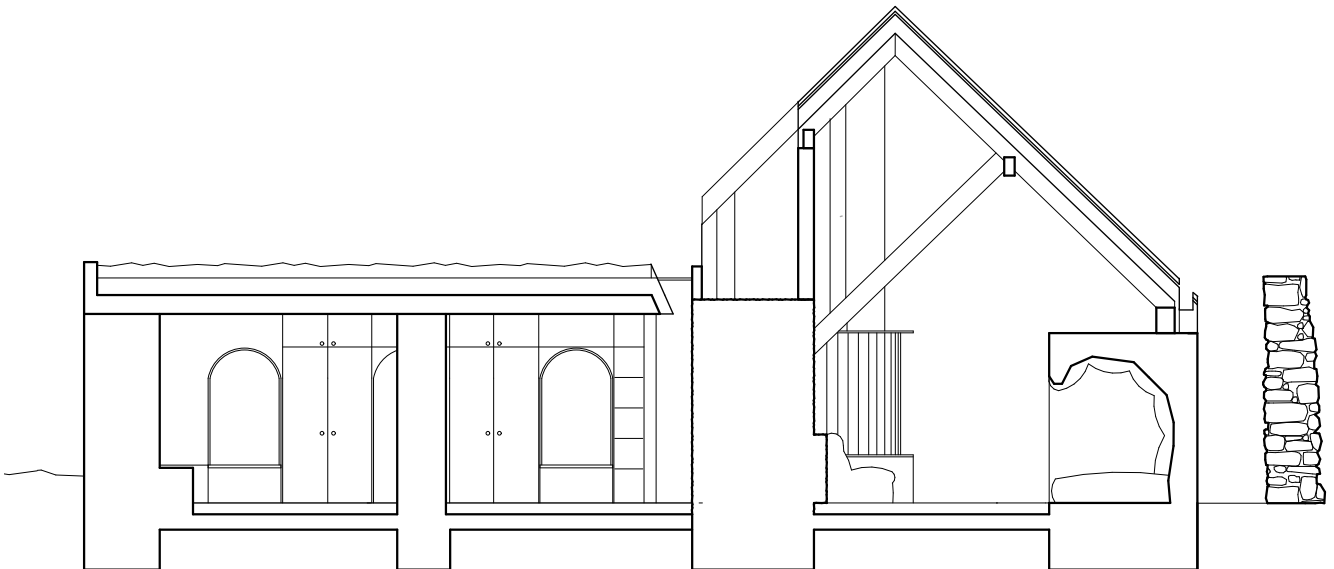
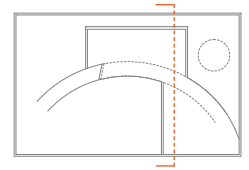




Section 4 1:100

The section through the kitchen part of the house, where the ramp is enclosed between walls from both sides. Here, the kitchen cabinets are visible, as well as the long kitchen window to the garden, with the smaller opening part next to the door. In detail, once the door and the window are both open, they create one opening without a frame in between.

The exposed wooden beam can be used for storage, and visually divides the wall onto a square bottom part and a triangular top.



Section 5 1:100

This section goes through both parts of the house, showing one of the three main functional walls in the bedroom, as well as a small hidden room in the main part of the house. This cave-like room is padded in soft textile, with integrated light. It can be a resting niche with neutral lighting, or a small sensory space with colorful lights.

THE SECOND PART

This part of the house is largely defined by the curved wall on one side, and the wall to the garden on the other side. The surface of the curved wall is raw and bright. The niches are framed with contrasting wooden panelling for tactile and visual recognition.

The fireplace in the middle of the room warms up the central wall, and its central position makes it visible from the main part of the house as well.

The toilet is hidden in the curved wall, but nevertheless well visible from the bed. The door can be marked, colored or translucent, with the possibility of blinds on the inside. In the rather open bedroom

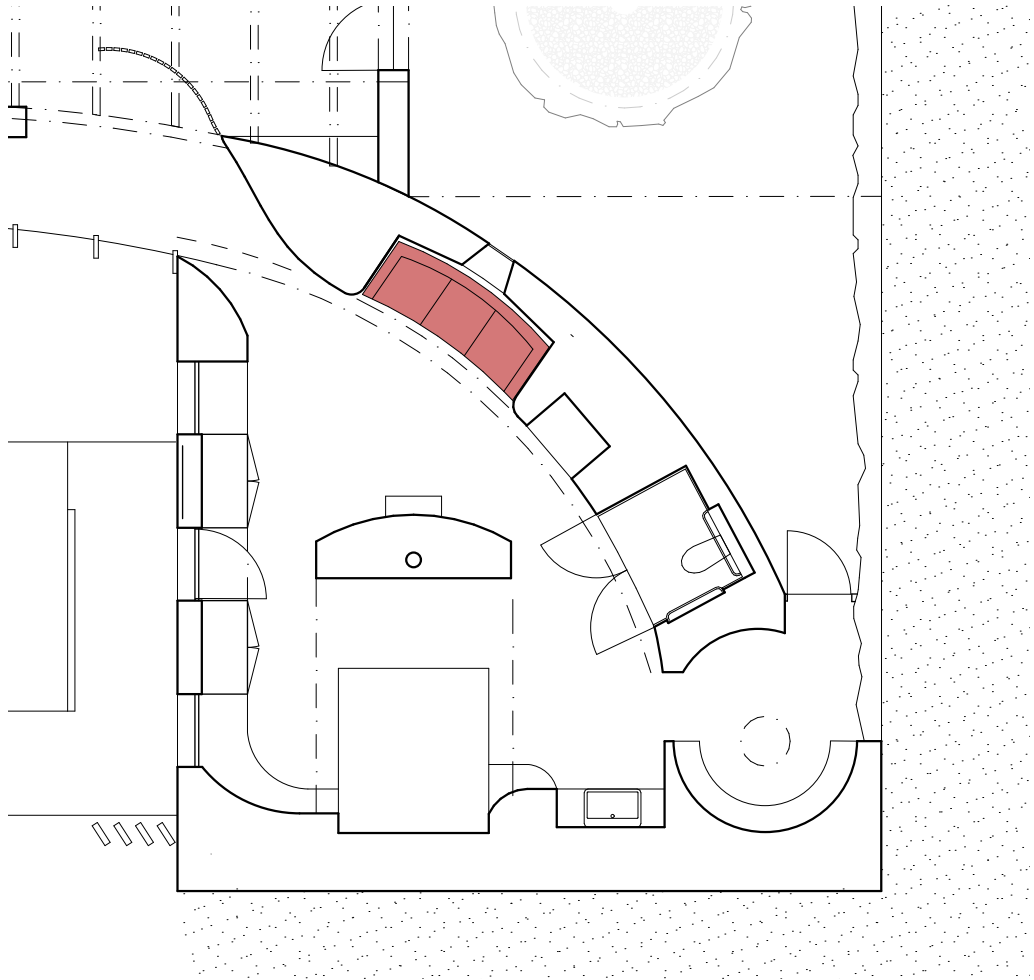
plan, the bed area is visually defined by the vault ceiling above, and can be closed by thick curtains.

The wall to the garden reflects the character of its elevation, by repeating the arched doorways in the wardrobe doors. The sitting areas by the window with heaters underneath, are a perfect place for short rest and observation of the world outside.

The wardrobe doors have small round holes on the height of person's grip while standing, which signal to the user, that this is not a regular wall. The glass door to the outside is placed between the two areas of the room, making it accessible from both sides, but also not intrusive.



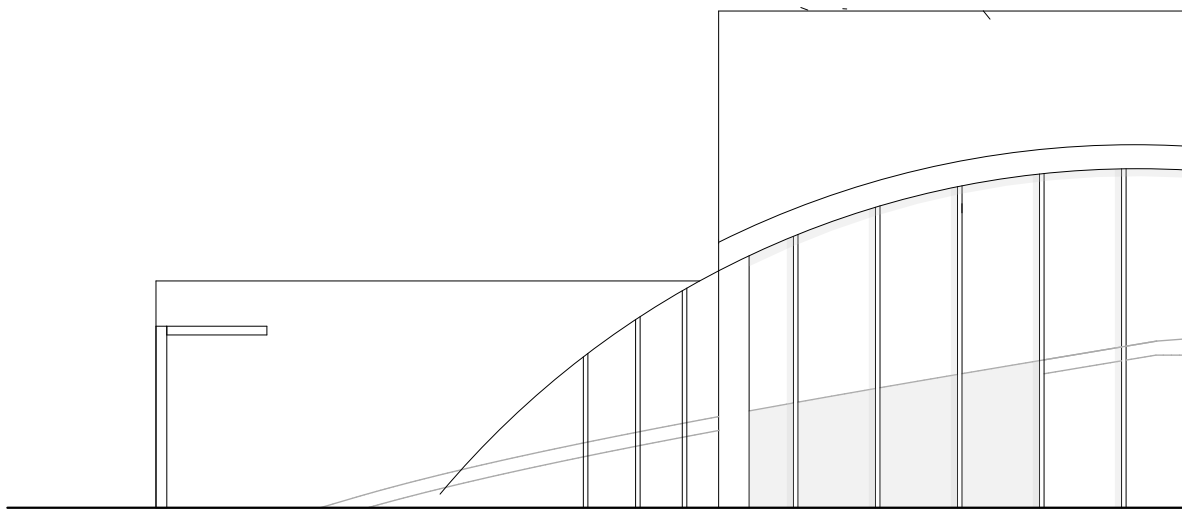
Fig.125: The wall with arches

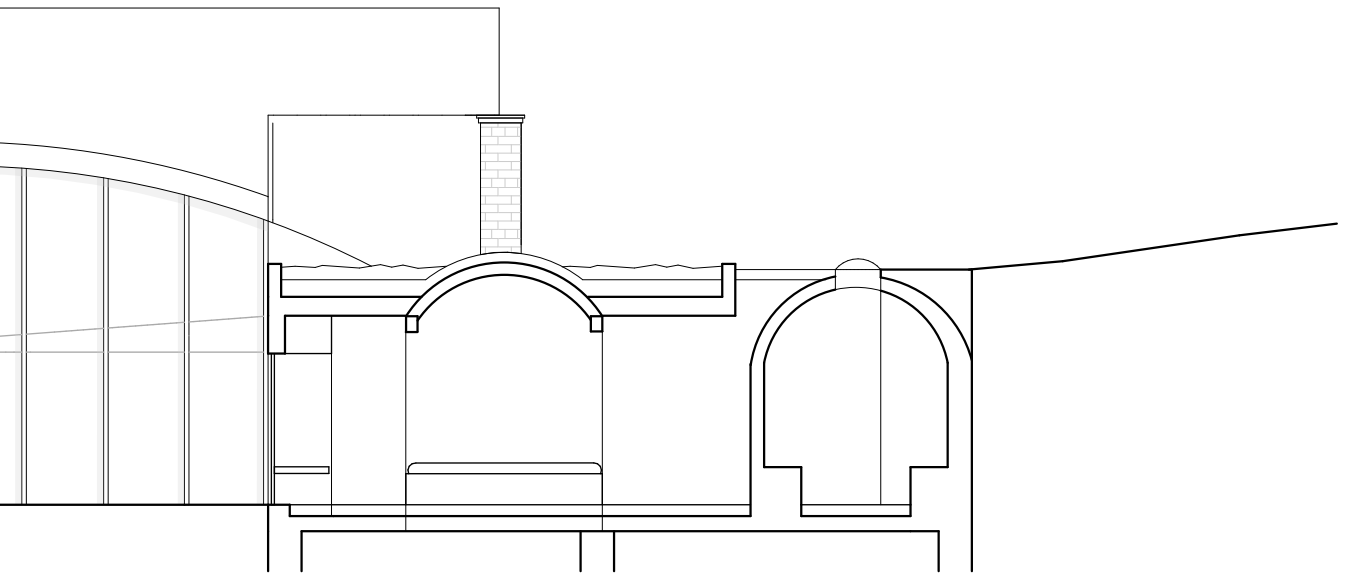
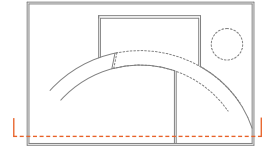


This living area differs to the main part of the house in its shape and materials. A sofa of bright and recognizable red colour is positioned in a niche near the fireplace. Would one, for example, fall asleep on the sofa, and wake up not knowing where one is, he would instinctively search for the support of the wall when standing up. Following the wall, one comes to either bedroom or to the main part of the house, depending whether one goes left or right. In the front, there is a fireplace, with the view to the garden in the background. As so, one might even be attracted to go straight out instead of following the wall, which makes this sofa niche a strategically good point to start the exploration of the house.



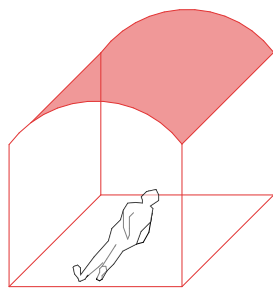
Fig.126: The curved wall with the skylight



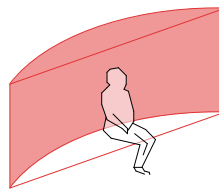


Section 6 1:100

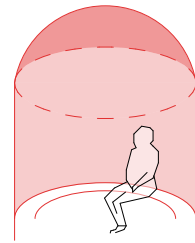
The section through the bedroom area and the shower shows two rounded elements visible on the inside, both defining a function underneath.



Bed



Bench



Shower

In different ways, some additional curved surfaces are integrated in the design. Those are marking some "rounded-up" areas or functions. The barrel vault above the bed is the main defining element in the bedroom, which is otherwise rather open in plan. The bed is also one of rare places in a house, where a person gives much attention to the ceiling, which is one of the last and first sights before and after sleep - therefore it presents a convenient opportunity to mark it, make it remarkable. Secondly, the sky is often symbolized as a vault, reflecting the curvature of the earth below.

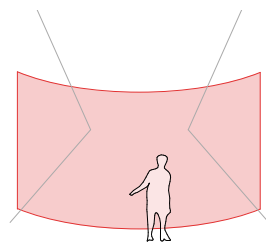
The dome above the shower however, reminds of healing spaces or a "spa" in an ancient

temple. It is a perfect shape for condensed water drops gathering at the very top and dripping down an arbitrary path. Not to mention the circle of 1,5m diameter for wheelchair-user accessibility.

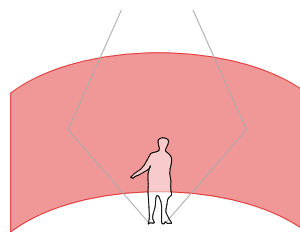
The bench takes a rounded shape with the symbolism of circle and gathering in mind - the round table, the sitting in a circle, the dancing in a circle seems like a general human symbol of socializing or connecting. However the shape does not offer the most comfortable back support for sitting (especially not on the sides), therefore additional padded elements, formed for a human body are included in the design.



Fig.127/128: the plaster model



convex



concave

THE GARDEN

The exterior around the house is just as well a part of the design as the interior. The diversity of interior spaces is also reflected in the garden and all its parts. The wall around the house defines the personal outdoor space, the property, with two main openings defining the entrance, as well as the main sunny terrace with a lawn. The distance of the wall to the house varies, resulting in outdoor hallways or defined outdoor room / patio.

The curvature of the house is being observed as a symbolic element of sun and light reflection. The concave curvature reflects to the inside, to the centre, accumulating the warmth and light. The convex side disperses the light away. Conclusively, the "inside" of the curve is a place of life and warmth, a sunny terrace at the heart of the property. One can relax with the sounds of the birds in the tree, observe the fish in the small pond, hide from the sun in the shadow of the tree or a pergola. The pathways are plenty in comparison to the green areas,

which is for the sake of providing enough safe walking surfaces. There are shading elements on the way, as well as sitting areas for rest. A brick wall with gaps between bricks, as well as pergolas grown-over with grapes or climbing plants, throw different shadows on the pathway. The ramp is marked by a change of material and two red poles, with a red handrail for the support on the way up and down.

The sitting area on the outer side of the curve has a different atmosphere than the sunny terrace, being shaded by an exposed stone wall, on a stone floor, below a pergola. It is just as close to the kitchen as the other terrace, and can be used more in the hot summer days. By the kitchen and the main entrance is the lifted herbal garden, conveniently near the shaded terrace and the garden shed.

The gate to the property is rather offsetted behind a wall. It leaves enough space for a parking spot, but also prevents unintentional wandering out.

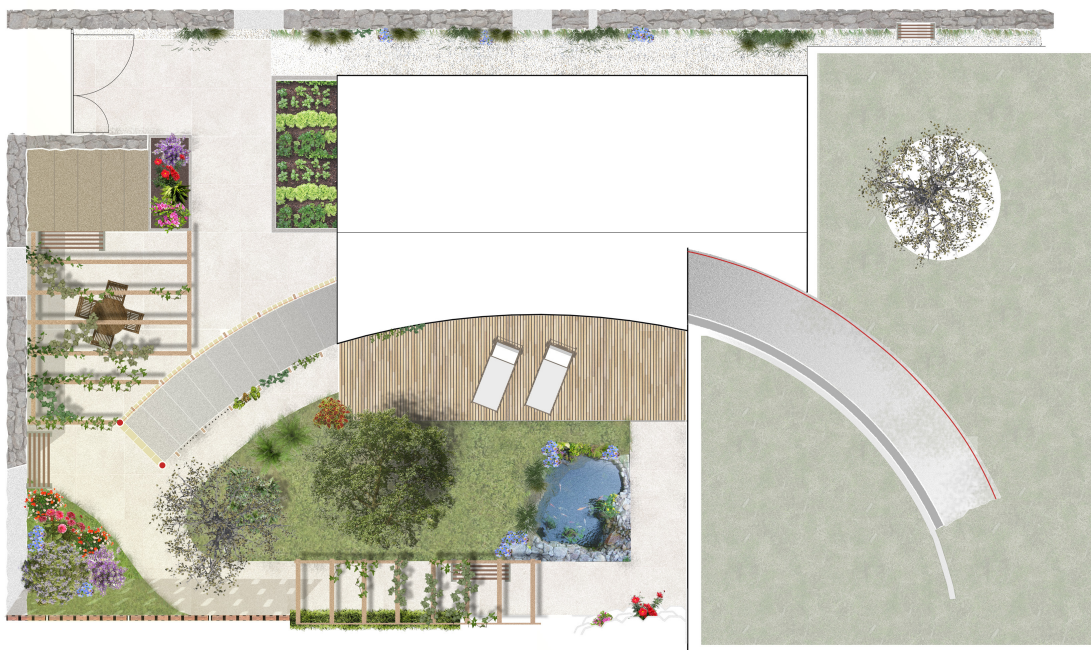
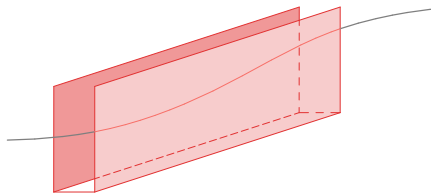


Fig.129: the garden



The "cold" corridor

THE CORRIDOR

A long, narrow corridor by the northern side of the house, leading along the stone garden wall towards the atrium with a tree, is a complete opposite of the main sunny garden in the south. Most of the day in the shadow, this corridor is a darker and colder outside area. It is also a transition between the regular front yard with the herbal garden, and the "atmospherically highlighted" patio with a tree. Small window-like openings in the wall, reminiscent of Mediterranean and carst regions, lessen the harshness of a naked stone wall and its verticality, and provide the only views from the property in this direction.

Such narrow corridors can be found in many mediterranean building structures. For example, on a visit in Karst I learned that sometimes, gaps between Houses were left in the orientation of the wind, to allow the air flow and cool down the streets.



Fig.130: cats cooling gown on a narrow street in Rhodes

THE PATIO

The bright area with the vegetable garden by the kitchen window is a complete opposite of the covered patio with a central (olive) tree, illuminated by the round skylight as if it was set in the scene.

I imagine the patio as the second path between the main space and the bathroom, a path one would take, almost unaware of being outside the house. Besides walking through it, it does not offer much activity. It is a place to sit down, calm down and reminisce.

The natural rock wall holds back the landscape, and so, this patio is essentially underground. Being most of time in the shade, the moisture stays longer on the rock surfaces, making them cold and wet to the touch. The sunlight illuminating the back wall through a gap in the roof draws attention to the wall, which continues down the cold corridor. From this patio, one can enter the bathroom or the main part of the house, which warm, bright, wooden interiors present a strong contrast to the patio. Entering the large space of the main part of the house, and leaving the small dark patio, might even feel like stepping out to the open - when in reality, one is stepping back inside.



Fig.140: The patio

ADDITIONAL MULTI-SENSORY INTERVENTIONS

Looking at the bedroom area, I aimed to develop a system which would allow the person sleeping in the bed, with blinds/curtains to the garden closed for less brightness in the room, to recognize the approximate time in a less irritating way than having to stand up, open the window and be surprised by the strong sunlight. It can act as an abstract sundial. Considering the orientation of the house and turning the skylight toward the rising sun, the early morning sunrays enter the room in a direct spotlight to the bed, the spotlight traveling along the wall towards the skylight as the sun rises. The afternoon sun however, does not find the direct way inside anymore, and is reflected from the curved surface, covered in reflective material of, for example, green colour (orange in the Fig.141). That way, the skylight shines green/orange around a certain hour. As the sun is setting, the last sunrays are caught on the red reflective surface, signaling the end of the day.

However such concepts are highly dependant on the actual building site and can be experimented with as a separate project entirely.

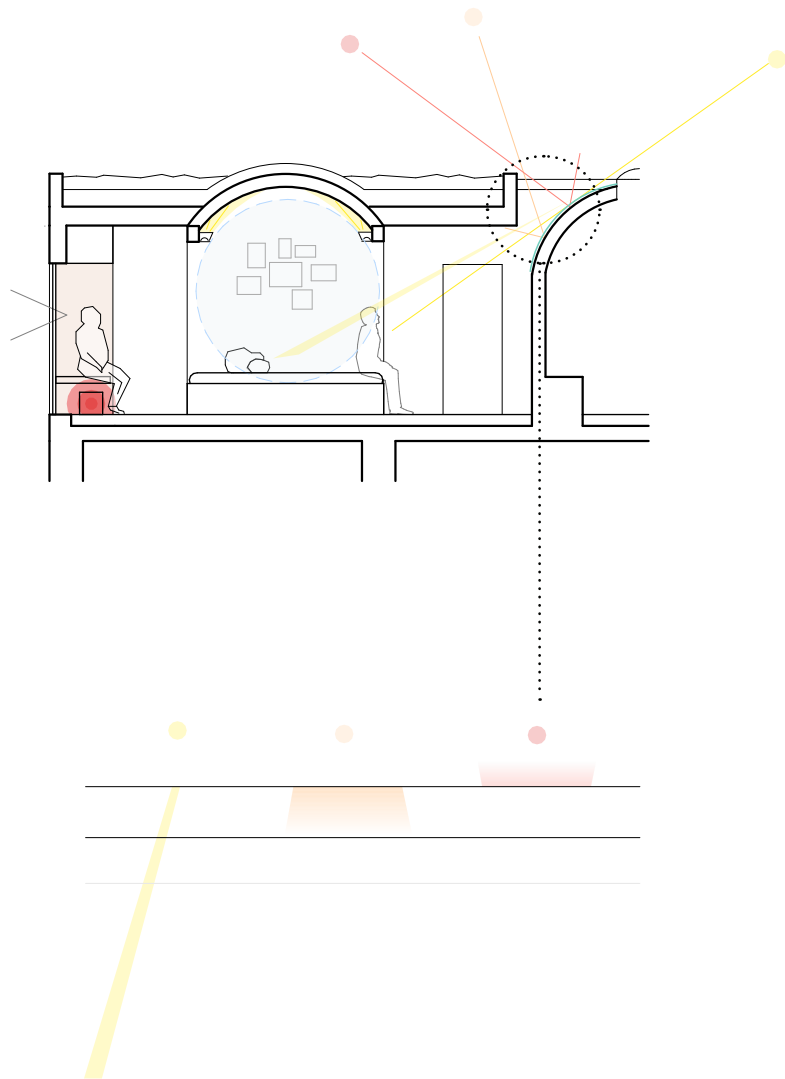
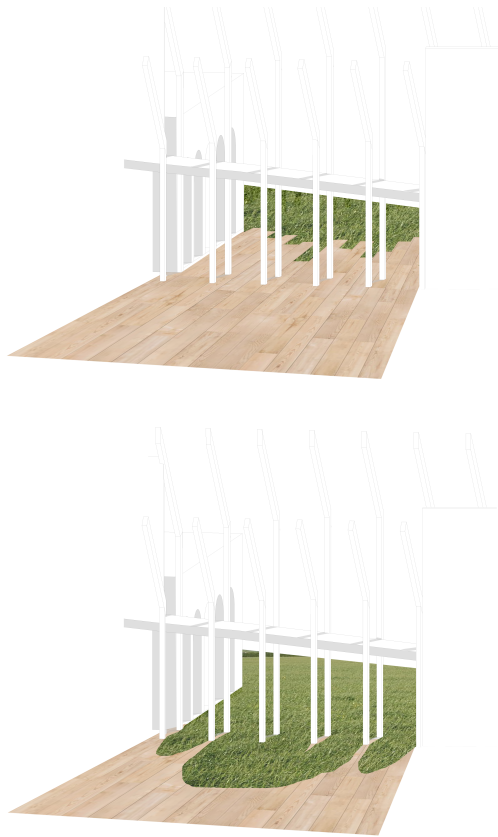


Fig.141: The reflection concept



THE INSIDE-OUTSIDE

The concept of inside-outside areas is well known in architecture and mostly represented by large glass openings, seamless transitions in materials and continuous floor levels. Usually, the interior qualities are extended in the exterior, but what if it was the other way around?

The main space of the house was designed with that in mind, the grass reaching into the interior under the ramp. Positioning the terrace door where the grass is, treating it as any other paving or flooring material. Bringing the outside natural materials to the inside.

Naturally, there are practical reasons as to why such concept would be difficult. Even if we ignore the confusion this would mean for a person with perceptual disabilities, the grass is a living material which would require enough sunlight and a lot of treatment to strive (and flourish) indoors. It would unavoidably bring along the problem of keeping the surroundings clean. However the thought of walking barefoot through the house and stepping on the soft, cold grass on the way, unaware of it, seems pleasant, the question remains if in practice, the grass would not rather be avoided by the resident. The final, more common solution of extending the interior to the outside terrace is more reasonable after all.

Fig.142/143: Manipulation of the inside-outside border



I tried stepping away from unnecessary building elements or decorations, however I do acknowledge that the multisensory experience of the house can be magnified by elements of interior design, furniture and special features. The following are examples of how the main area can be manipulated and reorganized in the ways which change the perception of space completely.

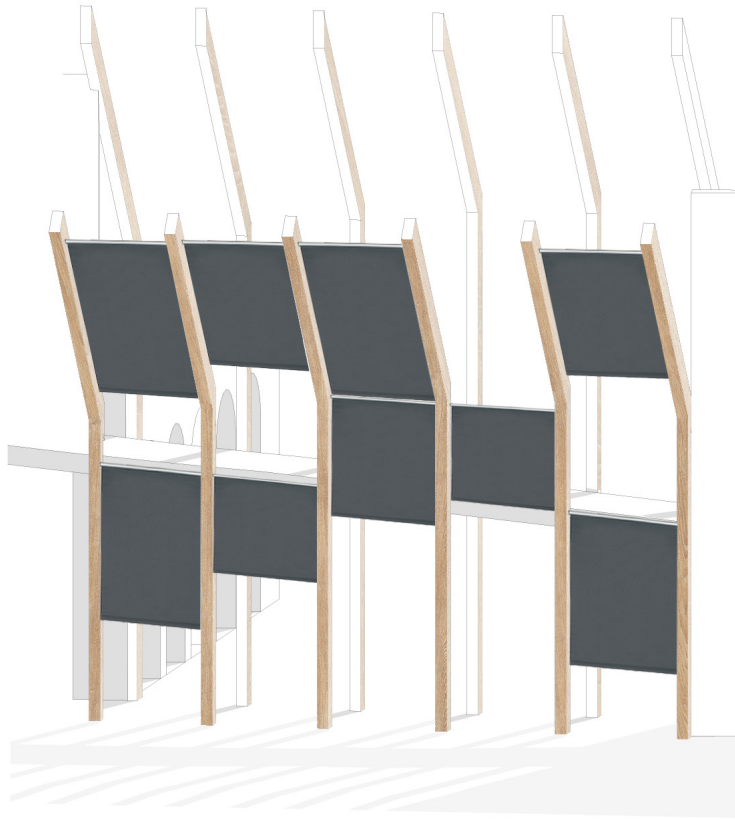
Firstly, the parallel separation of both construction layers, creating a corridor of pillars. This can be achieved by simple walls between the secondary pillars, or other, more uncommon elements which add to the multisensory experience. For instance, light curtains that flow in the air when one passes by or opens the window, or braided curtains and hanging wind chimes that accompany your movement with sounds and jingles.

Fig.144: corridor of curtains and braided room dividers



Secondly, the division of space can be applied in the perpendicular direction, which instead of a long corridor, creates a series of niches.

Fig.145: niches instead of a corridor



Adding dividing elements higher up on the interior construction blends out the outer layer and creates a feeling of a smaller and lower space. Such blinds can be, for instance, controlled with a remote. This way, the room can be darkened or opened up at wish, which creates a different atmosphere in a short time.

Fig.146: blinds between primary and secondary construction

CONCLUSION

To conclude, my conceptual design is an accumulation of ideas and elements with a very open approach to interpretation. In many practical ways, it would not be suitable for an average elderly dweller, but those practical (and economic) views have been pushed aside to make room for experimentation. Balancing the project on the brink of realistic and unrealistic, many ideas were also held back by the restraints of sensible planning for the target group with movement problems and perceptual impairment.

In many ways I have overstepped the border of the raw architectural construction, which I have set for myself initially. This is the case because of the constant reasoning, tendency to strive for simpler and effective architectural solutions which act as a flexible framework for interior personalization of space.

An overwhelming addition of more demanding elements of architectural construction is difficult to justify only with the argument of atmosphere or sensory experience, when similar results could be achieved in a simpler, temporary matter, with specially formed furniture and other interior elements. Also, the question remains whether overwhelming architecture is even appropriate for a home - the line is subjective, and can be quickly overstepped from a cozy home, a spacious/modern villa to a museum-like impersonal space.

However, a good selection of such architectural features is crucial for a project's essential versatility in atmosphere of the spaces, which overrules interior design, or does not even

include it. The overruling elements, in my opinion, are firstly the mere dimensions of spaces, in particular the height of the ceiling and its relation to the width and length of the room. Secondly, the lightness or darkness of a room - which can be however impacted by lowering the blinds, coloring the walls or dividing the room in hindsight. Further on, the shape of the room, which is more than often rectangular. The norm of rectangular rooms itself makes every other shape interesting and therefore perceived with awareness.

From the concept with many open possibilities, architecture would emerge upon the consideration of a real project site and a real inhabitant, with special consideration of his/her personal character, disabilities and wishes. An addition of sensory elements and characteristic architectural features however should not be reserved for examination only when needed, as an answer to certain disability or disadvantage - it can be applied everywhere and for everyone.

Thank you

To my dear mother, to my father, grandparents and the rest of the family; to Stefan; to Prof. Franziska Hederer; to Hermina Fürli and Perisutti Pflegezentrum; to Büro Luggin; to Prof. Hansjörg Tschom; to Eva Ramsenthaler; and to all who have supported me along the way.

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Fig.50: Sommerhaus by Nikolaus Korab

https://www.nzz.ch/feuilleton/kunst_architektur/elf-meisterwerke-der-oesterreichischen-architektur-1.18696811?reduced=true (18.12.2020)

Fig.53 and 54: Bildhauerunterkunfte by Anna Soucek

<https://oe1.orf.at/artikel/330498/Bildhauerhaus-St-Margarethen> (18.12.2020)

Fig.56 - 58 and 124: Xylophone pavilion

<https://morewithlessdesign.com/en/xylophone-pavilion/> (11.02.2020)

Fig.59 and 60: Dufttunnel

<https://olafureliasson.net/archive/artwork/WEK100824/dufttunnel> (09.10.2020)

Fig. 81, 82, 85, 86: Archiplan by Federico Babina

<https://www.archdaily.com/791404/federico-babinas-archiplan-illustrations-analyze-the-floorplans-of-master-architects> (11.02.2020)

Fig.122: Detail, OS House

<https://www.johnsenschmaling.com/os-house> (20.02.2021)

Photos, drawings and graphics that were not provided with a specified source were created by the author herself.

