

LEHMUSKOTI dementia unit

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s y m p t o m s - r e l i e v i n g
e n v i r o n m e n t

LAHTI UNIVERSITY OF APPLIED SCIENCES

INSTITUTE OF DESIGN AND FINE ARTS

Interior Architecture

Degree Programme in Interior Design, Master of Culture and Arts

International Master of Interior Architectural Design (IMIAD)

THESIS

spring 2014

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LEHMUSKOTI DEMENTIA UNIT: TOWARDS THE SYMPTOMS-RELIEVING ENVIRONMENT

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ABSTRACT

As the world population is aging, the number of demented seniors is growing up. Finland is leading in this process.

Many seniors who suffer from mid or late stage of dementia land in an institutional care. In addition to medical treatment, stimuli, social interaction, outdoor recreation, their life quality is hugely affected by the living environment. Its influence cannot be underestimated. The environment is able to improve general health condition and relieve the resident's symptoms, or it can further worsen them. In the best case it can support patients' attempts to cope with everyday tasks as much as possible, to encourage physical activity and to enjoy the social contacts.

Part of existing dementia care facilities, which are built long ago and are not fulfilling present-day requirements, could be renovated now. The renovation would enable to improve the residents' quality of life, reduce the staff's workload and have an economical benefit.

The study outlines the principles of dementia-friendly design. First, it briefly describes the dementia. Next, general principles of well-being supportive architecture are collected. The study examines the dementia symptoms and finds the connection between some of them and the environment. Reviewing and analyzing the literature, I present means with which interior architecture can significantly reduce some of the symptoms. I support the findings by my own examples.

The target of the thesis is to discover what is dementia-friendly environment and to apply its principles to the semi-private premises of Lehmuskoti dementia care unit.

KEYWORDS

demented
stimuli
activities
multisensory
homelikeness
non-institutional
planned wandering
residential facilities
relieving the symptoms
dementia-friendly environment

AVAINSANAT

dementoitunut
virike
tekemistä
moniaistinen
kodikkuus
ei-laitosmainen
suunniteltu vaeltelureitti
laitoksen asuinympäristö
oireiden helpottaminen
dementiaystävällinen ympäristö

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TIIVISTELMÄ

Maailman väestö vanhenee ja siten muistisairaiden määrä kasvaa nopeasti. Suomi on tämän prosessin kärjessä.

Moni vaikeaa tai keskivaikeaa dementiaa kärsivä seniori päätyy laitoshoidon, hoidon, virikkeiden, sosiaalisen vuorovaikutuksen, ulkoilun ja muiden keinojen rinnalla iso vaikutus asukkaiden elämänlaatuun on heidän asuinympäristöllään. Tätä vaikutusta ei saa aliarvioida. Ympäristö pystyy parantamaan asukkaidensa terveydentilaa ja helpottaa oireita, ja päinvastoin pahentamaan tilannetta. Oikealla tilasuunnittelulla voidaan tukea potilaan pyrkimistä hoitaa itseään sekä toimia itsenäisesti mahdollisuuden mukaan, innostaa liikkumiseen ja kontakteista nauttimiseen.

Osa kauan sitten rakennetuista dementiahoitolaitoksista ei täytä nykypäivän vaatimuksia ja on korjauksen tarpeessa. Korjausrakentaminen mahdollistaisi asukkaiden elämänlaadun korottamisen, vähentäisi hoitohenkilökunnan kuormitusta ja merkitsisi taloudellisia etuja.

Opinnäytetyön tutkimusosassa kuvataan dementiaystävällisen suunnittelun periaatteet. Aloitetaan demetian ymmärtämisestä. Seuraavaksi kerätään restoratiivisen ympäristön periaatteet. Tutkiessa demetiaoireita todetaan, että osa niistä on yhteydessä ympäristöön. Kirjallisuuden katsauksen ja analyysin jälkeen esitetään keinoja, millä sisustusarkkitehtuuri voi merkittävästi vähentää osan oireista. Havainnot ovat kuvitettu löytämilläni esimerkkeillä.

Opinnäytetyön tavoitteena oli selvittää dementiaystävällisen ympäristön periaatteet ja soveltaa niitä Lehmuskoti-dementiayksikön puoliyksityisiin tiloihin.

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Image 1: www.hhc.rca.ac.uk

1. INTRODUCTION

Why design for dementia is so important?

The growing amount of elderly people causes the increasing number of demented seniors which need assisted living. In Finland, their number will increase almost four times by year 2050¹.

Nowadays dementia has become the most expensive elderly people disease. As the demographic dependency ratio is changing and working population is decreasing it will become more difficult to staff the care sector.

My work is based on environmental psychology which states that physical spaces influence the way inhabitants feel, think, and interact with the world. Living environment affects their health and conciliation, thus their quality of life.

In case of demented seniors, the role of an environment can be crucial. When properly designed it enables to compensate the disease symptoms to a considerable degree. Besides raising quality of life and general satisfaction, it allows for less medicaments and reduction of unnecessary burdens on staff, which obviously has economic consequences as well.

Society has to prepare appropriate living environments for the demented. Some of existing dementia care facilities in Finland are situated in the constructions not meant for the purpose or being built long ago and no more fulfilling present-day requirements for this kind of institution. Most of them can not be replaced by new ones at least in the nearest future.

This makes redesign of the existing dementia facilities more and more topical.

¹ *National Memory Programme 2012-2020, 2012.*

1.1. THE SUBJECT OF THE THESIS

The subject of my thesis is Dementia care facilities, case Lehmuskoti: towards the symptoms-relieving environment.

In this thesis I create a proposal of redesigning existing assisted living facilities into more dementia-friendly environment, where patient, close relatives and nurses could feel respect and contentment.

1.2. STUDY PLANNING

My work consists of two parts:

- 1) the research, including collecting and analyzing the information
- 2) design process, or applying the collected information to the real case.

The FIRST part contains the following four steps:

- 1a) Learning about dementia and demented seniors.
- 1b) Investigating the interaction between the user and the environment. Drawing conclusions, specific design of the dementia facilities. Finding out the best design principles and the benefits of applying them.
- 1c) Interviewing the nurses of Lehmuskoti dementia unit in order to understand particular details of the premises and caregiving there, the users' challenges and wishes.
- 1d) Benchmarking.

The purpose of my research is to enable and support my projecting process by providing reliable information about the special user, understanding the principles of good environmental design for dementia healthcare

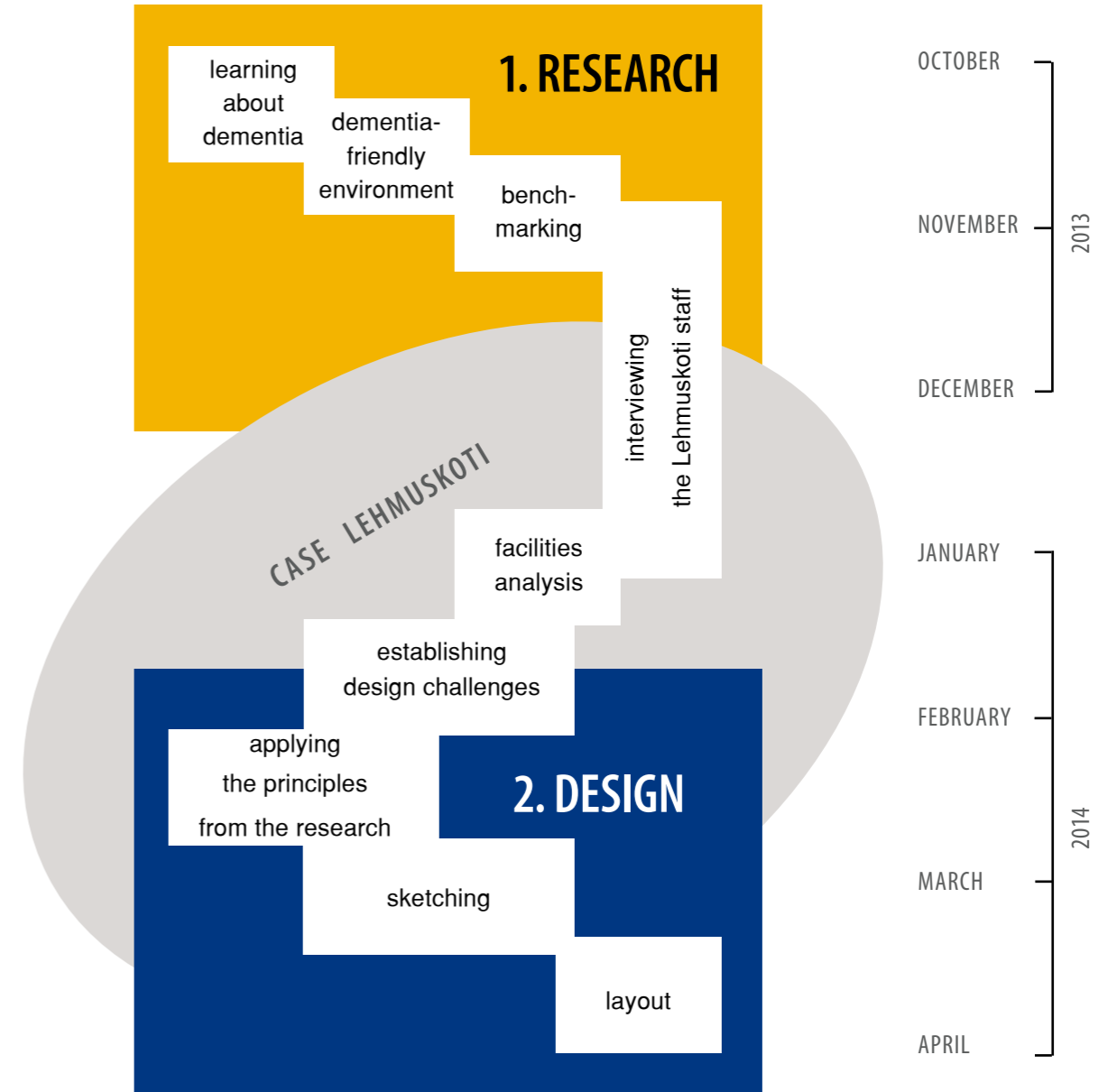


Figure 1: Veselovskaya 2013

facilities and analyzing references world-wide.

The SECOND part describes practical approach to improve the existing facilities. I processed the collected data thinking of the case Lehmuskoti, discovered how to use the possibilities of the premises. Next, I show the way how to compensate lack of some important features of the space in order to make the environment more dementia-friendly.

2. ELDERLY HOUSING IN FINLAND

2.1 DEMOGRAPHIC CHANGE

In Finland, as in other parts of the world, the number of older people in relation to the entire population continues to grow significantly. Demographic change will also impact the structures of society.

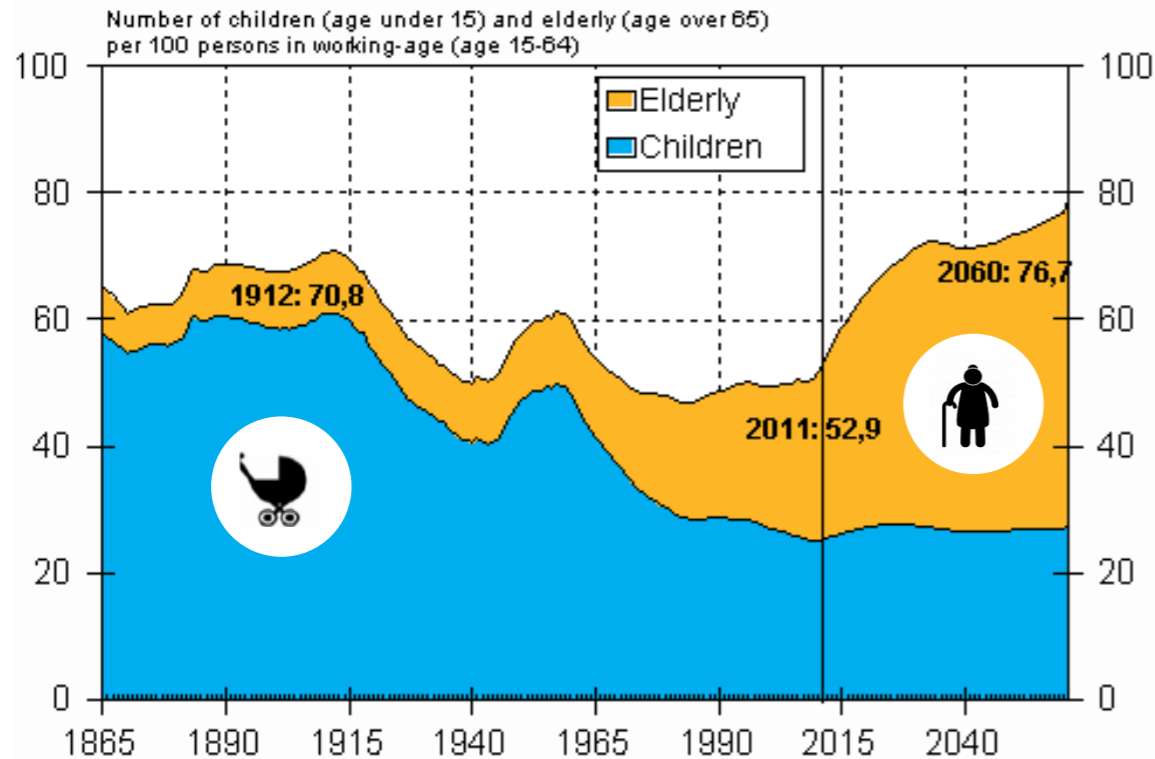
Finland is the fastest aging nation at the moment in Europe.¹

5-15 % of people 65 and older suffer from some form of dementia.²

¹ Finnish ministry of employment and the economy, 2012
² www.netwellness.org



Image 2: www.hs.fi



Demographic dependency ratio 1865-2060. Population Statistics 2012

Image 3: tilastokeskus.fi 2012

Image 4-a (pictograms): www.canstockphoto.com

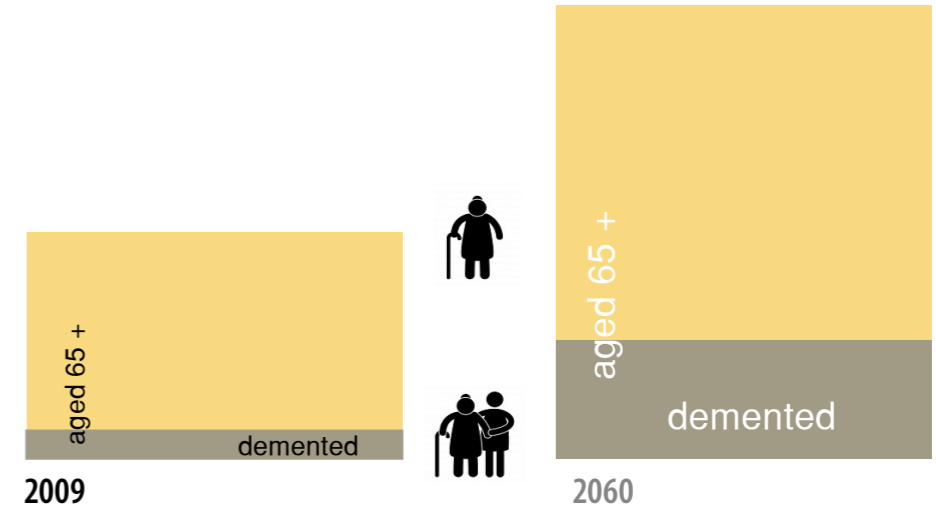


Figure 2: Veselovskaya 2013

Image 4-b (pictograms): www.canstockphoto.com

The diagram shows the estimated change in the amount of Finnish seniors and the demented.

Number of persons aged 65 and over, will almost double from present 905,000 to 1.79 million by 2060, rising from the 17% to 29 %; aged 85 and over is rising from 2 % to 7% (108,000 to 463,000)¹. More than 13,000 people in Finland are diagnosed with a dementing disease every year².

There were 120 000 demented patients in 2009 in Finland and their number is estimated to increase four times by year 2050³.

As populations age, caring for people with dementia has become the cause of vital importance worldwide.

¹ Statistics Finland. 2009

² National Memory Programme 2012-2020. 2012

³ Turun sanomat. 2009

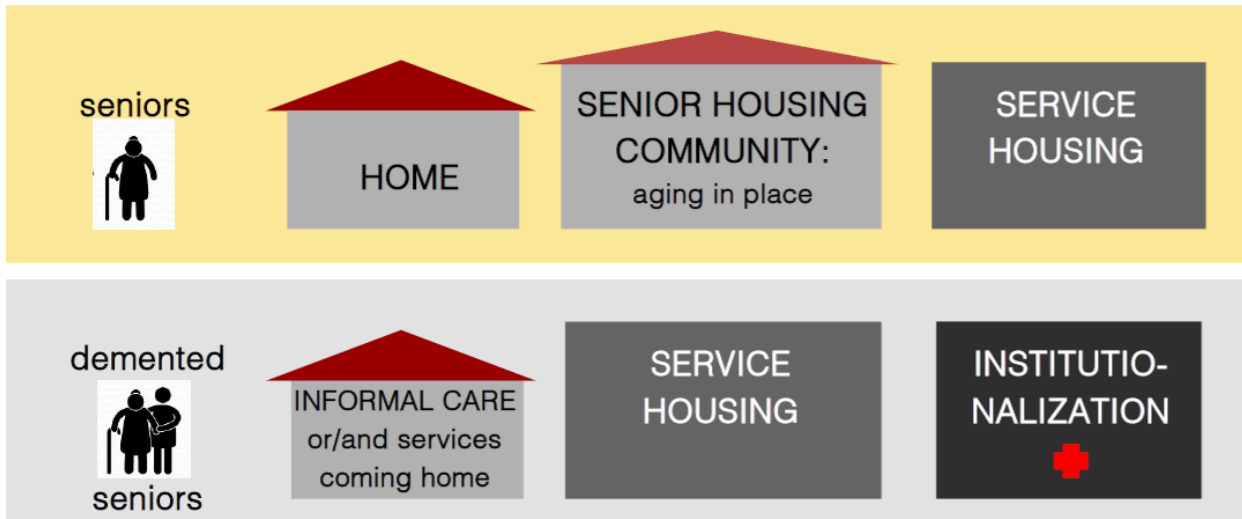
2.2 THE EXISTING TYPES OF ACCOMMODATION FOR SENIORS

In Finland, everyone has the right to a dignified old age.

The Finnish Constitution Act (section 25) requires government to ensure the implementation of fundamental and human rights. The key fundamental value is respect for human dignity. Everyone must be ensured the right to a dignified old age and good treatment, irrespective of where they live or are cared for and of what their requirements for services may be¹.

The elderly people are willing to stay at their homes as long as it is possible, that is also the least expensive option for the society. The strategy of the Finnish Ministry of Social Affairs and Health is to provide and prolong seniors' independent living at home. Institutionalization is tried to be avoided in many ways, for example by offering the services to homes. The

¹ Ministry of Social Affairs and Health publications. 2008



Present types of dwelling for seniors and the demented ones.

Figure 3: Veselovskaya 2013

Image 4-c (pictograms): www.canstockphoto.com

aim of the aging policy is to promote older people's

- functional capacity
- independent living
- active participation in society.²

However, together with a staying home seniors have a choice to move to the Service Housing for the elderly ("palvelutalo"), where such services as dining and guided activities are offered. Single seniors missing own contacts might prefer this option. There is also relatively new kind of dwelling as Senior Housing Community ("senioritalo"), an Aging in place -concept

² Ministry of social affairs and health. 2011.



Loppukiri senior housing community, dining room/social place. Arabianranta, Helsinki

Image 5: Veselovskaya 2013

based condominium with common property's shared ownership.

Starting from the moment when supervision or assisted living is needed, the care system is made in two types: formal and informal. Formal care involves care institutions ("laitokset"). Patient lives in facilities, where staff is present 24 hours a day. Informal care ("omaishoito") means that the senior, who becomes unable to cope with everyday activities independently, continues living home being cared by the family member or loved one.

Institutionalization is the most expensive type of accommodation.

Referring to the World Alzheimer Report 2013, Turun sanomat³ informs:

"In 2015, memory disorders' care causes almost four billion euro cost" (in Finland - note by O.Veselovskaya). The calculation was made by Raimo Sulkava, a professor of geriatrics at the University of Eastern Finland, and Peter Viramo, a senior physician at the Oulu Deaconess Institute. It corresponds to 7% of the state budget for this year, or almost a third of the budget of social and health care contribution. It is clearly more than Finland's defense budget".

"One Alzheimer's patient's the entire treatment costs are 170 000-200 000 euro; 70-80 % of this are 24 hour care costs".

Three out of four patients receiving 24-hour care have a memory disorder⁴.

³ Turun Sanomat. 2013 / translated by O.Veselovskaya

⁴ Ministry of Social Affairs and Health. 2012.



Image 6: Pikkuhookkana 2013

Rantakartano Oulainen dementia unit, Oulu

2.3 THE ELDERLY HOUSING: SPACE PLANNING REQUIREMENTS

In order to help the planners and the decision-makers to understand special needs of the elderly people a special extra heavy suit named Age Man was invented in Germany. You can put it on and try to feel how aged person might feel.

80+: how do you feel?

- + 22 kg
- vision decreases
- colour vision decreases
- hearing decreases
- difficulties in movement

The old age has characteristic health properties, because often some physical changes take place. The so-called geriatric giants are the major categories of impairment that show up in elderly people. These include

- falls
- immobility
- instability
- (urinary) incontinence
- confusion (delirium or dementia).



image 7: AgeMan.de

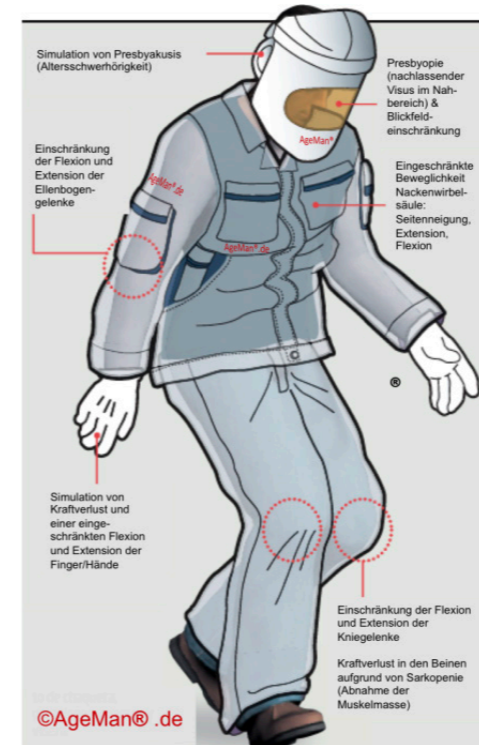


Image 8: AgeMan.de

When one is older, sense organs start to fail. Impaired vision cause difficulties in coping with everyday activities, hearing loss can cause social isolation and depression.

These changes make certain demands of the space which should provide prerequisites for the seniors independent life. For example, seniors having mobility problems use a stick, a walking frame or wheelchair, which means that the premises should be roomy enough, threshold- and barrier free. The older the person is, the more time he/she usually spends inside. This makes proper planning of the living spaces for seniors even more responsible.

The general requirements for planning senior housing are:

- safety
- physically barrier-free space, fulfilling the accessibility regulations
- proper lighting
- proper materials (e.g., not slippery, hygienic, contrasts)
- noise reduction, acoustics
- enhanced way-finding, navigation
- balanced privacy-publicity relationship
- mentally barrier-free planning in order to support social contacts (concerning semiprivate space in the first instance, welcoming)
- services available
- activities enabled.



Loppukiri senior housing community, social space. Arabianranta, Helsinki
Image 9: Veselovskaya 2013



Loppukiri senior housing community, sauna's terrace. Arabianranta, Helsinki
Image 10: Veselovskaya 2013



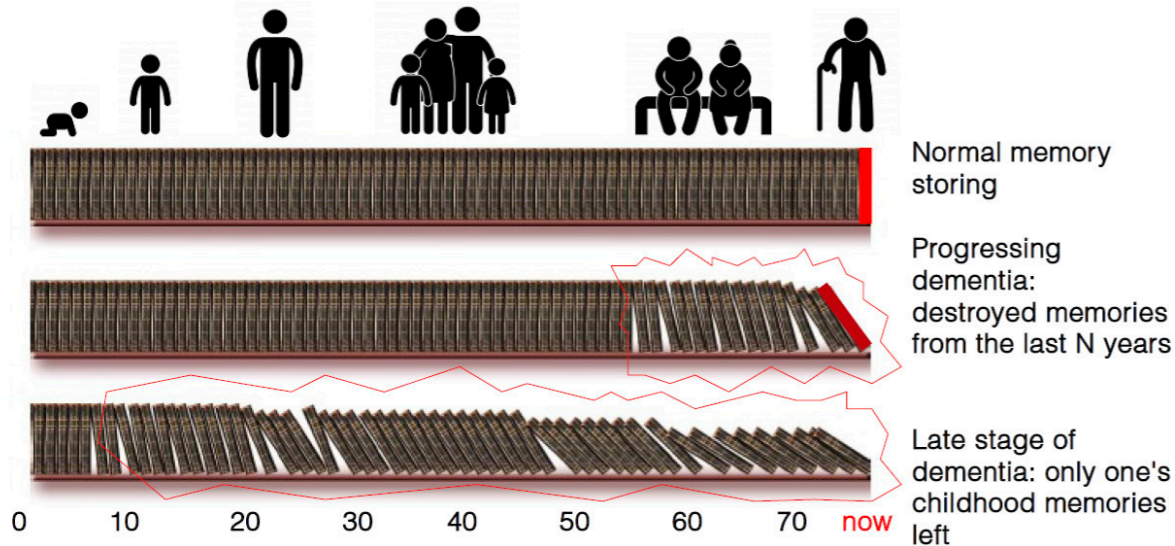
Loppukiri senior housing community, sauna's recreation room.
Arabianranta, Helsinki
Image 11: Veselovskaya 2013

3. DEMENTED SENIOR

3.1 WHAT IS DEMENTIA. THE SYMPTOMS

Dementia is a loss of cognition, affecting memory. This is an acquired disorder. The Alzheimer's disease causes 50 to 80 percent of dementia cases.

The illness is marked by difficulty storing new memories and recalling recent events, loss of ability to track day-to-day information, disrupted sense of time and space, social withdrawal, irritability, and mood changes. Practi-



Bookshelf model.

Image 12: Aro 2008.

Image 13 (pictograms): www.canstockphoto.com

cally it means, for example, a decline in the ability to cope with everyday tasks, to talk, read and write, to recognize familiar persons. The condition typically becomes apparent after age 60.

Dementia can be slowed down but cannot be recovered.



Image 14: Veselovskaya 2013

- Where am I?
- What date is it today?
- What year?
- Who am I?
- Who is that person?



Image 15: galerevilla.blogspot.fi

M R Y

M M O R

M E M R Y

M E O R Y

M E M O R Y

M E M O R Y

M E M O R Y

Figure 4: Veselovskaya 2013

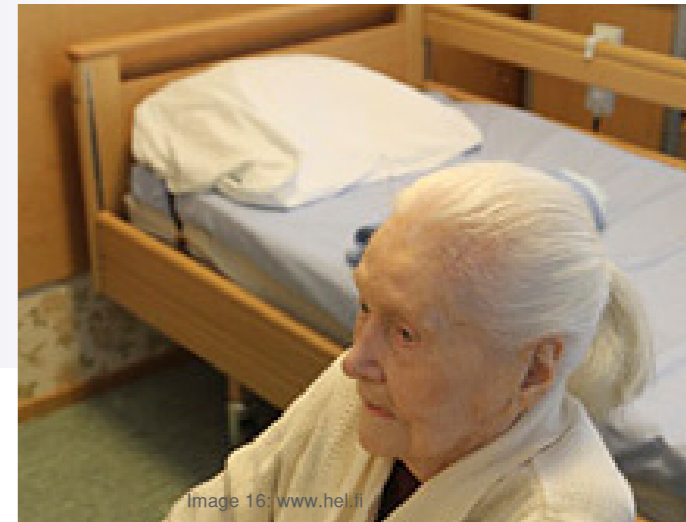


Image 16: www.hel.fi

Below the most significant signs of dementia¹ are listed. The ones marked in bold font have direct or indirect connection to the environment.

- **Memory loss** (danger of getting lost, inability to find one's way)
- Impaired judgment
- Inability to manage with money
- Difficulty with familiar tasks
- Trouble planning or problem-solving
- **Misplacing things**
- **Confusion with time or/and place**
- Difficulty communicating
- **Wandering (desire to walk)**
- Repetitive speech or actions
- **Trouble with visual or spatial relationships** (inability to perceive shapes, directions and objects)
- Misrecognition of family and friends
- Seemingly purposeless activity
- **Social withdrawal**
- **Loss of motor skills and sense of touch**
- Loss of initiative and motivation
- Difficulty dressing
- Disregard for grooming and hygiene
- Forgetting meals
- Inappropriate behavior (saying tactless things; inappropriate sexual behavior), clingy or childlike behavior
- **Agitation** and mood swings, verbal and **physical aggression**
- Delusions and paranoia
- Trouble sleeping.

There are three stage of dementia: early, mid and late. Seniors with the mid and late stage need assisted living.

¹ Forgie. 2011.

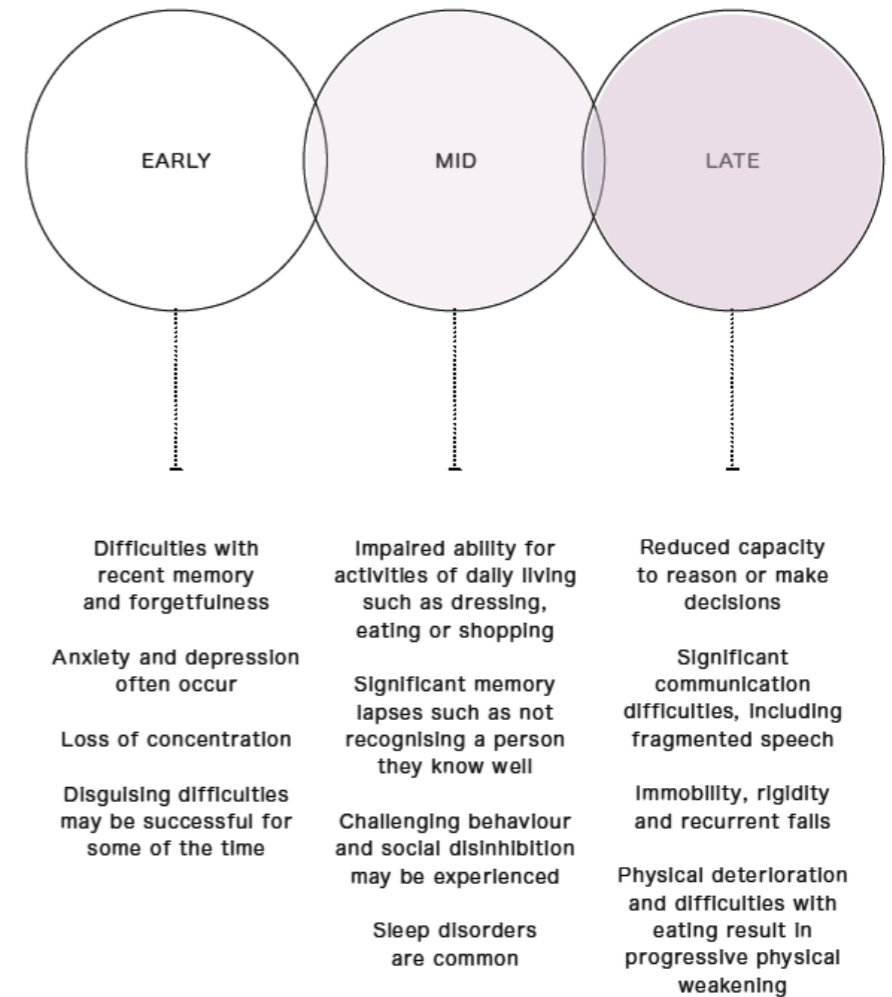


Image 17: www.hhc.rca.ac.uk

4. DEMENTED SENIOR AND THE ENVIRONMENT

In this chapter I figure out the requirements for dementia care facilities, search for the means which enable to create dementia-friendly environment and make benchmarking.

4.1 SPACE PLANNING REQUIREMENTS FOR DEMENTIA FACILITIES

4.1.1 WHAT IS DEMENTIA-FRIENDLY FACILITY?

Martin Prince, a professor at King's College London's Institute of Psychiatry said health and social care authorities needed to recognize quickly that people with dementia have special needs. According to his statement, compared with other long-term care users they need more personal care, more hours of care, and more supervision, all of which is associated with greater strain on nurses, and higher costs. *"Their needs for care start early in the disease course, and evolve constantly over time, requiring advanced planning, monitoring, and coordination".*¹

The present chapters (4.1.1-3 and 4.1.5) are mostly based on the material from Alzheimer's Australia's guide "Dementia care and Built Environment"², which says: *"In an environment designed to specifically meet the needs of people with dementia they are more likely to be able to utilize their retained abilities with minimal frustration, and experience the highest possible quality of life".*

According to Dr Robert Yeoh, president Alzheimer's Australia, the dementia facilities environment should

- Compensate of disability
- Maximize independence, reinforce personal identity and enhance self-

¹ Kelland/Reuters. 2013.

² Alzheimer's Australia. 2004, 5.

esteem / confidence

- Care for staff
- Be orientating and understandable
- Welcome relatives and the local community
- Control and balance stimuli.

What is the purpose for dementia friendly design?

The fundamental purposes of a dementia friendly unit are

- To compensate for the effects of dementia and
- To support the patients' retained function and skills.

What indicates the quality of life of the demented patients? The quality of life of demented seniors is expressed through their response to the environment.

According to Dr Robert Yeoh, the residents with dementia demonstrate well-being when they are able to express their wishes in an acceptable way, initiate social contacts and take pleasure in aspects of daily life.

The dementia care unit should provide opportunities for privacy and for socialization on a manageable scale.

There is consensus in the literature on the design features that should take place in the environment for demented seniors to provide the maximized quality of life. These features are³:

- Unit of a small size: 8 -12 bed unit can maintain a domestic character (bigger unit has to be broken into units of smaller size)
- The building's rectangular layout significantly helps orientation (angles others than 90 degrees are tried to be avoid in the floor plan)
- Internal walking loop (in each unit)
- Exit control from care unit (unobtrusive and immediate)

³ Benbow. 1994.

- Familiar building style, that is domestic and homelike
- Plenty of scope for ordinary activities (unit kitchens, washing lines, garden sheds)
- Unobtrusive inclusion of safety features
- Rooms for different functions that are equipped with furniture and fittings familiar to the age and generation of the residents
- A safe outside space
- Having single room for each resident is very important in terms of the privacy of visitors and of the end-of-life care
- Size of the single room big enough for some personal belongings
- Good signage and multiple cues where possible; e.g. sight, smell, sound
- Usage of objects and shapes rather than colour for orientation
- Enhancement of visual access
- Control of stimuli, especially noise.



Image 18: www.adventisthealthnw.com

4.1.2 FEATURES THAT ASSIST ORIENTATION

The way-finding and orientation is an issue for the demented people. The task like visiting dining room and finding back can turn out to be unmanageable without help. To facilitate the task we have to use something that helps to distinguish one place from another. They are so called landmarks. Landmarks can be architectural construction like column or detail like special plant, memorable art object or just something of a strong colour. Anyway, it assists the identification of the part of space.

There are more ways that can help in orientation.

- The room's furniture has to indicate clearly the purpose of the room
- Avoiding shiny surfaces (residents can mistake glare on the floor for water)
- Multiple cues, words and symbols, for door identification (especially wc)
- Using of meaningful and personal items for helping navigation
- Lighting can play an important role for way-finding. It is natural for people to move toward light than darkness. The light can lead residents to the wanted direction, thereby taking away from unwanted places.

4.1.3 BALANCED AND CONTROLLED STIMULATION

One of the dementia care goals is to balance the sensory stimulation so that neither overstimulation nor boredom dominate. To achieve this we

- Activate all five senses through using light, colour, contrast, texture, aroma and sound
- Reduce any noise, which has most significant damaging effect on people with dementia.

4.1.4 HOMELIKENESS

Many researches refer to a facility environment's "homelikeness", which is according to their opinion an important precondition for demented patients' well-being. As far as patient often does not remember, WHY and WHERE he/she is located, the seen space can either agitate him/her or calm down.

Indeed, at home you feel safe, everything is so familiar and mostly can be controlled.

The demented people, placed into facilities, may come from different backgrounds or even cultures. They have got used to very different homes before. What suits ones may not suit others.

So, what is homelikeness in case of institution? The "wrong style" of an interior can have an opposite, agitating effect.

1. An ordinary corridor in senior housing. Kustaankartano.
2. Attempt to create a homelike atmosphere in the corridor. Kustaankartano.



Image 21: www.mtv.fi



Image 22: www.anna-silja.fi



4.1.5 RECOMMENDATIONS ACCORDING TO THE PREMISES

Single room as a personal territory

Having an area of personal territory while living in facilities is crucial. Patient must have possibility for privacy. This space is a real home for them since they start staying in institution. Resident can furnish his/her room with personal furniture, keep some meaningful items, which work as a "link to the past", improving the memory through recalling stories (old photos, crockery etc). Personal space's availability means an opportunity to rearrange, make changes there, which is a way for self-expression and chance to make a choice (decision), that is welcomed in the situation of being demented.

Activity areas, involvement in day-to-day activities

Meaningful activities can be one of the strongest stimulus to live. Doing something useful one can feel the importance of his/her existence. An occupations like kitchen chores, safe gardening opportunities and craft works should be offered. A separate space can be provided for other activities, which also have a therapeutic effect, like music, interaction with pets and

multisensory experience.

For activity areas, the objective is to facilitate the spaces' best use for demented persons, by minimizing possibilities for mistakes and getting into dangerous situations. These kind of spaces should provide

- Improving of "zest of life" through increasing curiosity, meaningful activity
- Psychological security
- Safe physical activity
- Balanced stimulation



As a result, it will minimize behavior disturbances and increase satisfaction.

Activity areas can be used for supporting the relationships with family and the people who are significant for the residents.

Potential different cultural background of the residents should be taken into account as well. To experience the situations that are culturally familiar is critical concerning to the patients' quality of life.

Dining room

Having a dinner can be very significant event for demented seniors, who mostly stay inside and whose life is quite eventless. Dining can be an important source of enjoyment as well since they are deprived of many others. It is recommended to use rather smaller, then larger spaces for having dinner, because they are not so noisy and are able to provide calm, enjoyable meal times, which improves nutrition.

- Tables for 4-6 persons
- Square tables (easier to identify the space for each person than when used roundish tables)
- Stable and supportive seating furniture
- Sufficient lighting which enhances functionality
- Contrasting colours help to identify crockery and utensils

Social space

In case of a private house, social space would be a living room. The main task of this kind of premises is to attract people in by offering activities, contact opportunity, preventing loneliness and social withdrawing. To succeed it should be done by

- Small seating groups, which support more than one activity at a time
- Integrated spaces, for craft, music or physical exercises



Image 25: iese.it

- Toilet adjacent to the social place
- Supervised by staff (visual access from the staff room)

Staff working space

Care and service staff needs work and storage areas for their duties. The requirements are

- Clear visual access to the residents from the staff room
- Private space for working
- Accessible storage spaces for equipment (as cleaning materials etc.)
- Camouflaged places and doorways undesired for residents.

4.2 WELL-BEING SUPPORTIVE ARCHITECTURE

In this chapter I collect tools for creating dementia-friendly environment. I start from well-being supportive architecture, which is valid instrument for any health care premises, not only in case of dementia facilities. Next I collect special tools, which help to reduce the symptoms of dementia.

Therapeutic environments

The character of the physical environment where a patient is staying / treated affects the treatment's outcomes, patient satisfaction and safety, staff efficiency and its satisfaction. These effects are either positive or negative, no environment is neutral.

The part about the therapeutic environments is based on the materials from Whole Building Design Guide¹ issued by National Institute of Building Sciences, Washington.

Therapeutic environment theory stems from the environmental psychology (psycho-social influence of the environment), psychoneuroimmunology (the way environment impacts the immune system) and neuroscience (how the brain perceives the architecture).

Healthcare facilities are usually stressful and scary for patients which do not feel safe and are isolated from usual social contacts. This stress impacts immune system, emotional and spiritual resources slowing down or obstructing recovery.

Researchers, architects and designers who plan for healthcare agree that there are four key factors which are able to improve significantly the patients' well-being:

- Reduce environmental stressors

¹ *Smith, Watkins. 2010*

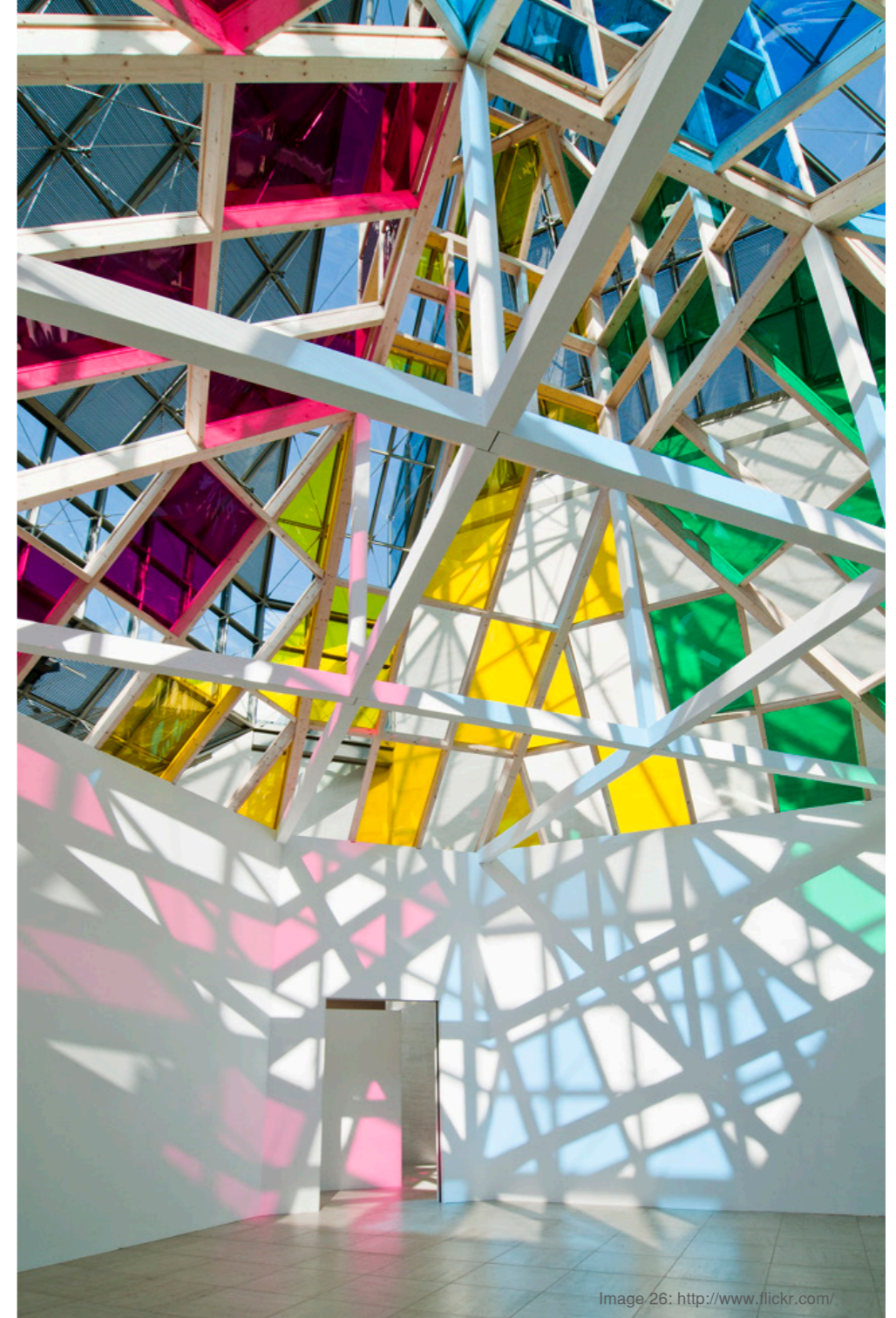




Image 27: <http://mosaicartsource.wordpress.com>

Mosaic Airport Mural. Houston, Texas

- Provide positive distractions
- Enable social support
- Give sense of control.

The following means can be used to eliminate environmental stressors and to provide positive distraction:

- **Artwork and colour** can enhance the soothing qualities of space.
- **Visual and noise privacy.**
- Avoiding objectionable or medical odors.
- **Appropriate lighting systems.** Lighting can be a factor that alters mood, increases stress, disrupts daily rhythms and modulates hormone production. **Dynamic lighting** supports natural circadian rhythm, provides natural daylighting where possible or bright white lights in the daytime.
- Views of **nature**, artwork depicting nature, back-lighted photographs of nature. Access to nature, healing gardens.
- Chapel, meditation room, and meditation gardens.
- **Music**; live piano in public area, recorded music in patient room when programmed specifically to create a healing environment.
- Corridors, public spaces, and gardens that invite **walking** when appropriate.
- **Pets** and other activities or elements that allow for a sense of stimulation that help nurture a patient's **sense of positive well-being.**

From all of the above-mentioned means, nature plays one of the important roles. Humans find nature restorative, regardless of age or culture. The mood improves after spending time outside; stress, depression and anxiety disappears. Roger Ulrich, professor of architecture and lead researcher of healthcare environments, states that finding nature restorative is hardwired in our genes². Researches show that after a stressful event, images of nature quickly bring a calming effect. This is essential regarding to the facilities' environments.

2 Kreitzer. 2013



Vertical gardens

Presence of nature is really beneficial for the people who are forced to stay indoors, like hospital or facilities' residents. Vertical garden, using walls, does not take much space.

Lighting and acoustics

Proper lighting and noise privacy are crucial for the well-being of elderly people. Failure of sense organs should be compensated wherever possible. The elderly people need much more light than the young ones to cope with familiar ordinary tasks. Noise, known as very strong disturbing factor, causing uneasiness and anxiety, should be reduced as much as possible.

Lighting and acoustical properties both can be combined in the ceiling panels. Each panel is covered by special fabric, which provides sound absorbing. Some of the panels are emitting light. Being turned off the lighting emitting panels looks similar to the ordinary ones. The system makes the impression of skylight.

Image 29: <http://www.soundlightcomfort.com/>



Image 30: <http://p-ec1.pixstatic.com>

4.3 THE SYMPTOMS-RELIEVING ENVIRONMENT

Let's go back to the chapter 3, where the symptoms of dementia are listed. We will be interested in ones which are related to the environment. There we can find:

- Memory loss
- Misplacing things (concerning mostly a single room)
- Confusion with time or/and place
- Wandering
- Trouble with visual or spatial relationships
- Social withdrawal
- Loss of motor skills and sense of touch
- Anxiety and physical aggression

The researches show that proper design can relieve or compensate some of these symptoms. Below is a short review of how this target can be achieved.

Physical activity as the best Alzheimer's stopper

The Alzheimer disease is a fatal illness, which is beyond cure for the moment. However proper care can help to avoid an institutionalization. Geriatrician, professor of general practice and memory care coordinator Kaisu Pitkälä says¹: "We have to realize, how much the physical rehabilitation can slow down the collapse. A lack of the physical activity can cause a bed-patient." The researcher believes that the competence can be improved, behavioral symptoms can be reduced, the institutionalization delayed and even memory functions may take a turn for the better! Walking in turn is the easiest way to have simple physical activity, especially as the demented themselves tend often to walk ("wandering").

This information makes me think about organizing of pacing routes strate-

¹ Tikkanen. 2008



Walking along the corridor.

gically. Ideally they should be planned in a building's project stage. Obviously walking loops are related to a corridors' system. Corridor lengths should be minimized in consideration of the need for homelike environment and efficient staff circulation.

For demented persons, it is recommended to organize an internal walking loop in order to avoid dead ends, which are extremely frustrating for them. Staff workloads may well be eased by the loop making it less necessary for

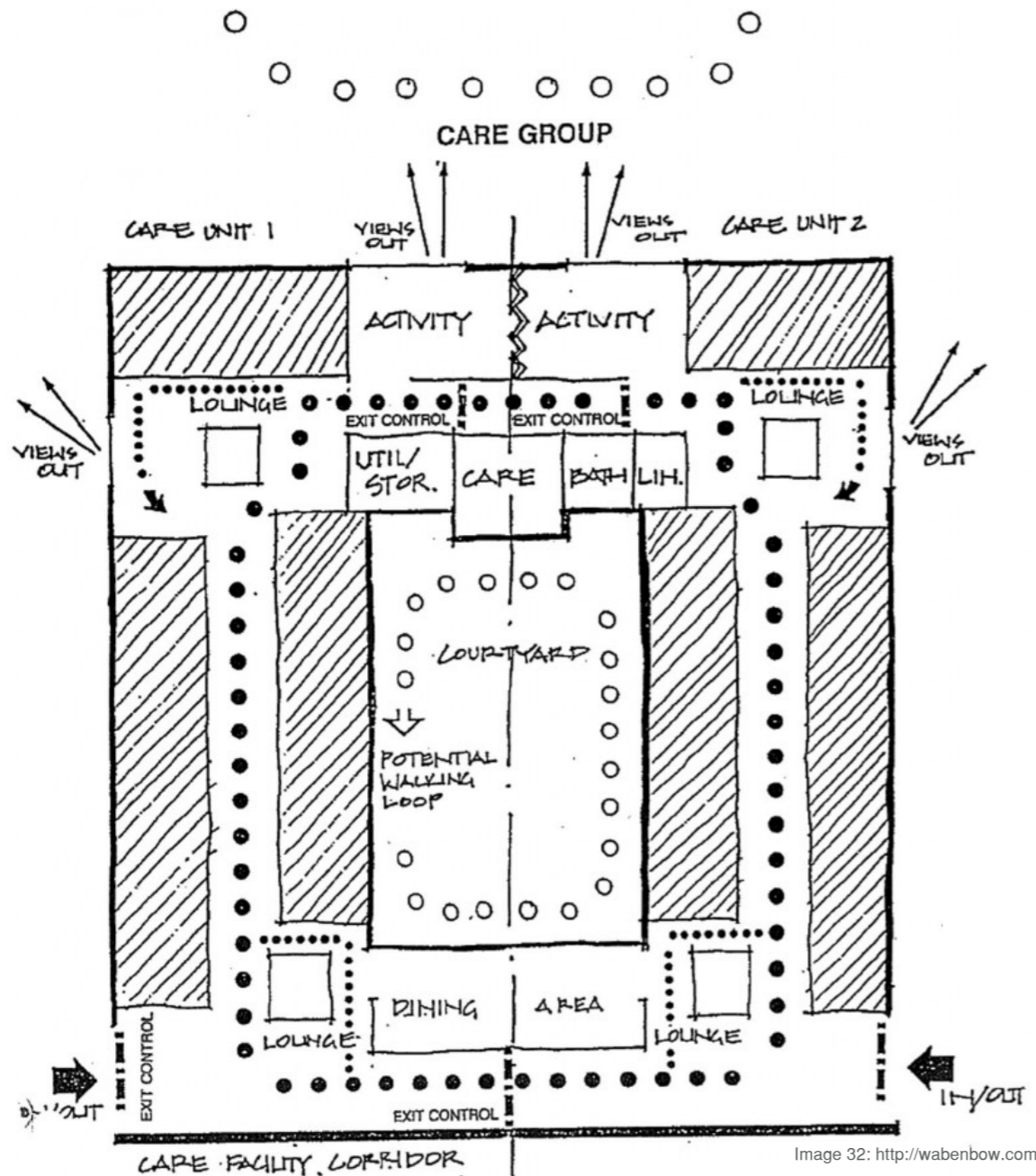


Image 32: <http://wabenbow.com>

Walking loop from The Multilevel Care Design Guidelines Commentary (1994, British Columbia)

staff to chase residents or help them out of dead ends.

Planning the loop going around the "points of interest" (for example, large window with nice view, social space, nurses' station) gives a feeling of meaningful activity for the walker. Then walk will mean an opportunity to meet a neighbour, possibly to have a conversation, to observe what is happening in the unit. Providing the loop with sitting places encourages even more impaired residents to start on the journey.

Dementia care corridor featuring front porches.
 Pearl Garden care centre for individuals with Alzheimer's Disease. UK



Image 33: www.thegoodmangroupuk.com

Multisensory environment

Relaxation can help to ease stress. For demented seniors it has even bigger effect. University Hospitals Extended Care Facility in Chardon, Ohio offers a room (called Snoezelen Room) specifically designed for patients suffering from dementia. The space is designed to deliver stimuli to various senses, using lighting effects, color, sounds, music, scents.

Smell of lavender calms patient down. Fiber optics, mood lighting, textures and soft sounds can be tuned to stimulate memories, interest or energy.

Sense of control is a very important factor relaxing a lot of the agitation symptoms. A patient takes pleasure changing the colors and watching the bubbles in a glass bubble tube.

Dr. Stevic-Rust, who designed the room, said that it has ability to calm fears and anger.

They don't have to understand it. They don't have to reason their way through. They don't have to comprehend. Eight patients have used it so far



Image 34: <http://media-cache-ec0.pinimg.com>



Image 35: www.firstcoastnews.com



Image 36: www.carebase.org.uk

and already staff has seen some impressive changes. Some do not need medications in the middle of the day like they used to.¹

¹ Robins/WKYC/NBC News Channel CHARDON. 2007.

Safe activities integrated into the interior

It is known that the elderly people with dementia tend to wander and walk. In case of care facilities, the place for this is usually a corridor. The corridor does not have to be boring and monotonous. Different types of activity boards can be placed on the walls there. This safe form of tactile and senses' activating stimulation was developed in the UK. Huge benefit from the point of view of staff is that the residents can use these activity panels unsupervised: there are no loose parts, so they are secure for anyone.

On images 1- 2 below, there are two kinds of wall-mounted panels: Pathfinder Activity Board and activity loop wall panel. They train dexterity, eye-hand coordination and concentration.

This type of activity has huge fundamental value to those who need improvement in the areas of visual tracking, fine and gross motor dexterity, eye-hand coordination, and sensory motor skills¹.

Activities can be integrated into the furniture as well. For example, Magnetic Maze Table is a labyrinth, which can be placed anywhere into the social place. The player can choose between an easier goal or more challenging task. The product is easy to clean.

1 Terry, Birtles. 2014

1. Pathfinder Activity Board



Image 37: www.activitiestoshare.co.uk

2. Activity Loop Wall Panel



Image 38: www.activitiestoshare.co.uk

3. Magnetic Maze Table



Image 39: www.activitiestoshare.co.uk

Silent room

Scanning the researches, I found a recommendation to arrange a silent (quiet) room in the dementia unit.

Ira Verma, architect, researcher from Sotera institute/Aalto University says in her article Residential and Facility Environments for The Demented (Dementiaoireisten asuin- ja hoi-
vaympäristöt):



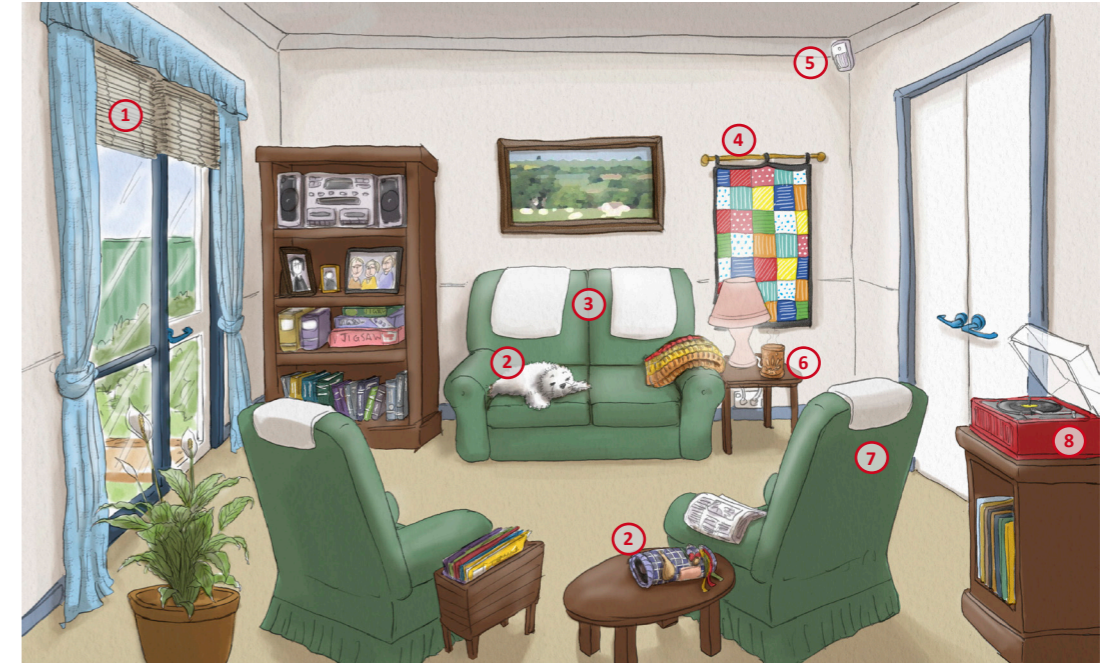
" Care unit should also have a quiet space, where residents can go or to which they can be guided by staff when agitated! "

Alzheimer's Australia WA offers a quite room (next page) that could have various functions: patient gets there in order to calm down, at the same time it can be used for "quite activities" like reading newspapers, listening records, to host visitors etc.

My personal opinion concerning the concept of a silent room in case of Finnish residents is that the room for calming undoubtedly should refer to the nature. Cultural specificity plays an important role here: Finns always have had very strong connection to the nature. A forest, summer cottage and sauna on the lakeside recall positive and joyfull memories in many people.

Recorded music and aromatherapy can be a useful addition to the room.

1 Verma I. 2008, 31



CARE ENVIRONMENTS : QUIET ROOM

- 1) Principle #4:** If needed, blinds can be used to shut out unwanted stimuli from the outside, such as overly bright lights and distracting noises. They also allow for privacy to be maintained. (See the info page on "Sound").
- 2) Principle #5; Principle #10:** Consider using dolls, robotic pets and sensory items for quiet engagement opportunities. (See the info page on "Sensory Environments").
- 3) Principle #2:** A quiet room is a private and quiet secluded area for an individual or small group. A small settee is a good place for an intimate gathering
- 4) Principle #5; Principle #10:** Consider using textured wall hangings and soft furnishing to absorb sound and maintain a quiet environment. (See the info pages on "Sound" and "Sensory Environments").
- 5) Principle #3; Principle #6:** Consider using a motion sensor light, which turns on when movement is detected in the room and automatically becomes dimmer when there is no movement (for example when someone falls asleep in the armchair). (See the info page on "Lighting" for more helpful tips).
- 6) Principle #5:** An electric aromatherapy diffuser can be used to add to the sensory private social space.
- 7) Principle #10:** The Quiet Room can be used as a Study for quiet activities like relaxing and reading the newspaper.
- 8) Principle #9; Principle #7:** The quiet room can also be a good place to relax and listen to a favourite record. (See the info page on "Sensory Environments").
- Principle #8:** A quiet room can be used by family members/visitors to provide experience. (See the info page on "Sensory Environments").

Image 41: www.enablingenvironments.com.au

Wood

Material plays a significant role in the environment. An experiment, conducted in Japan in 2012, describes how wood impacts seniors: "Behavior Changes in Older Persons Caused by Using Wood Products in Assisted Living"¹.

The participants were 44 older persons living in a single assisted-living facility. They were divided into five groups depending on how much they should use wood products. Experiment lasted for 5 weeks. Health care professionals evaluated the seniors' health status and activities of daily living through regular observation.

The study clearly shows:

- Wood has relaxing effect and reduces exhaustion
- Responsiveness to social engagement increased
- Social interaction and self-expression enhanced

The study concludes that use of wood products may enhance the possibility of preventing mental and physical decline in the frail elderly.

¹ Anne T. et al. 2012

Problem and solution

Below, several illustrations are collected. They show various kinds of problems that the demented patients can face/cause and how the problem can be solved.



Image 42: <http://martela.com>



Image 43: www.housing21.co.uk

"May I cross the line?" Contrast breaks the shape.



Image 44: random.com

Contrast underlines the shape (floor - wall).



Image 45: homedesigning.zippykid.netdna-cdn.com

"Where is the floor, where is the chair?" Poor visibility.



Image 46: tojmiyakoti.fi

Easily understandable space. Contrasts and opposite colours.



Image 47: Veselovskaya 2013

Lack of contrast.



Image 48: Taburet, 3/2000

Contrast increases visibility.



Image 49: Veselovskaya 2013

Poor visibility: dangerous.



Image 50: Veselovskaya 2013

Staircase's visibility increased. Glare on the floor should be removed.



Image 51: jangrue.com

"Where is the door?"



Image 52: www.rtv.fi

Visibility increased through contrast and colours



Image 53: blogs-images.forbes.com

"Which door is mine?"



Image 54: sisustusvaniljaunelmia.blogspot.fi

Easily recognizable signboard, details like particular doorhandle (memory can serve through tactile cues)



image 55: Pikkuhookkana 2013

Visible exit door reminds of outside world making "wanting to leave" stronger. Oululainen dementia koti.



Image 56: www.enablingenvironments.com.au

Creatively camouflaged unwanted areas



Image 57: http://taikinanaama.blogspot.fi

"is there some water on the floor?" Glittering surfaces confuse



Image 58: www.carebase.org.uk

Matte surfaces preferable



Image 59: Veselovskaya 2013

I don't remember, which season it is now.
Diakonissalaitoksen dementiaosasto, Helsinki



Image 60: www.impactvisualarts.com

Printed backlit acrylic panel can be replaced according to the season



Image 61: Aro, 2008

"Where am I and why? Is it a hospital?!"



Image 62: www.jackiepoolassociates.org

Non-institutional ambience: corridor as a market place!
The Mayflower Care Centre, Kent, UK



Image 63: Veselovskaya 2013

"Day or night, morning or evening?"



Image 64: Aro, 2008

Dynamic light answers the question "what time is it now"



Image 65: www.vastavalo.fi

Managing with an anxiety attack: own room



Image 66: vastavalo.fi

"Silent room": soundproof room with nature view photowall

This table summarizes the possible problems and the ways to solve them.

ISSUE							
SOLUTION / HELP	<ul style="list-style-type: none"> ■ Space perceiving problems ■ Trouble with visual or spatial relationships 	<ul style="list-style-type: none"> ■ Memory loss, misplacing things ■ Getting lost, inability to find one's way ■ Exposure to danger (burns, toxic plants...) 	<ul style="list-style-type: none"> ■ Confusion with time or/and place: "Where am I and why?!" 	<ul style="list-style-type: none"> ■ Social withdrawal ■ Loss of motor skills and sense of touch 	<ul style="list-style-type: none"> ■ Wandering ■ "Wanting to leave" 	<ul style="list-style-type: none"> ■ Anxiety, physical aggression 	
	<ul style="list-style-type: none"> ✓ Rectangular grid, understandable layout ✓ Clearly defined surfaces (eg., floors differ from walls) ✓ Usage of effective colours & tonal contrasts ✓ Sufficient lighting 	<ul style="list-style-type: none"> ✓ Enhancement of visual access: better chance of finding something if it can be seen ✓ Way-finding improvement, landmarks, navigation hints, space personalization ✓ Safety environment, including non-toxic plants etc. 	<ul style="list-style-type: none"> ✓ Clock, calendar presence ✓ Cues for the season (view from the window, season interior decoration, replaceable image or fake window presenting current season) ✓ Familiar, home-like ambience ("Not to worry!") ✓ Dynamic lighting 	<ul style="list-style-type: none"> ✓ "Mentally accessible" common space ✓ Attractiveness of corridors and other common spaces, reducing the feeling of facilities ✓ Wood products ✓ Activity boards 	<ul style="list-style-type: none"> ✓ Planned wandering: safety and attractive route, activities available ✓ Avoided space /camouflaged dead ends ✓ Safety outside area ✓ Creative camouflaging of undesirable doorways to reduce the interest 	<ul style="list-style-type: none"> ✓ "Silent room"- isolated space to calm down ✓ Multisensory room ✓ Features providing sense of control 	

Figure 5: Veselovskaya 2014

4.4 BENCHMARKING

Teemuntalo service housing for the elderly, Lahti

Teemuntalo does not have a corridor. Instead, there is a beautiful promenade with plants, street lamps and sitting places along.



Image 67: www.paulide.fi

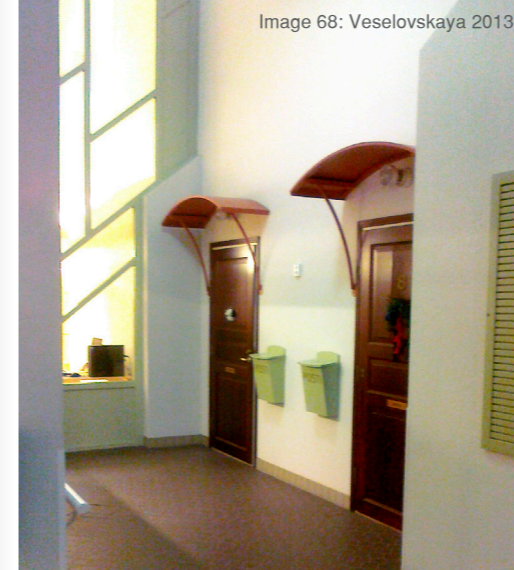


Image 68: Veselovskaya 2013

Entrance to the residents' private apartments enhances the feeling of being outside, in front of the house's door. Each door has its own canopy, light, mail box and signboard for easier recognition.

The Muses, residential building for the elderly, Almere, Holland

The same idea of the sheltered space between the buildings is used here. The space reminds a little street or even a winter garden. The environment looks safe and encourages to walk and contact the neighbours.



Image 69: www.sotera.fi

Teemuntalo's dementia unit, Lahti

Dementia unit's sitting area ("Tähdenlento") and the internal walking loop have some day light from the courtyard; the ceiling is painted in blue to make the impression of a sky.

Birch abbey dementia care home, UK

There are comfortable sitting places with plenty of plants along the corridor.



Image 70: www.paulide.fi



Image 72: http://jainmalkin.com

Katzin residence Alzheimer's/Dementia care living room, Encinitas, California

Dementia care facilities' living room offers piano, sitting place with books and newspapers and space for walking. Recessed lighting imitates skylight.



Image 71: www.fwpgroup.co.uk



Image 73: www.sotera.fi

Vuorensyrjä service housing, Helsinki

The design of this lounge appeared as a result of a pilot, conducted by Sotera Institute (Aalto University). The purpose was to involve the residents into active interior design process, encouraging them to tell their wishes, to present own ideas, make sketches.

The majority missed presence of nature. The space was designed by a professional according to the residents' requests.

Diffused light, acoustic panels and hygienic materials are used in the space. There is possibility to listen recorded sounds of forest.

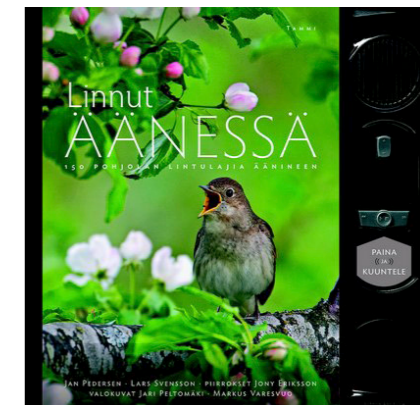


Image 74: www.ilonpolku.fi

5. CASE LEHMUSKOTI

5.1 THE SUBJECT PRESENTATION

The thesis' subject is dementia care unit named Lehmuskoti ("linden home") belonging to Ilmari Helander's Elderly Foundation. It is situated in Maunula Service Housing, North Helsinki. Its red brick building was built in 1983.

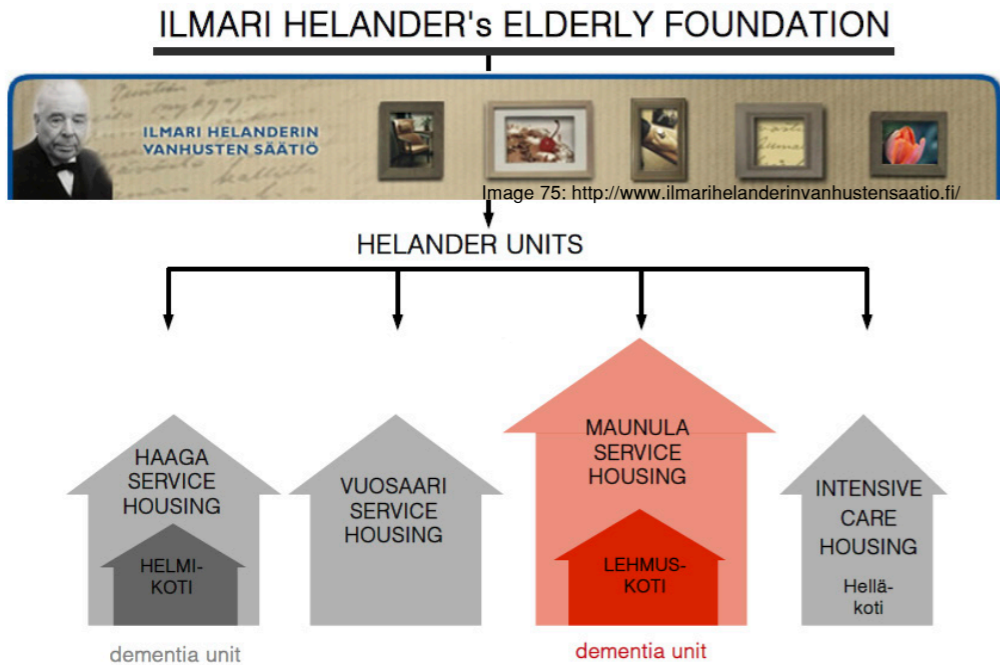
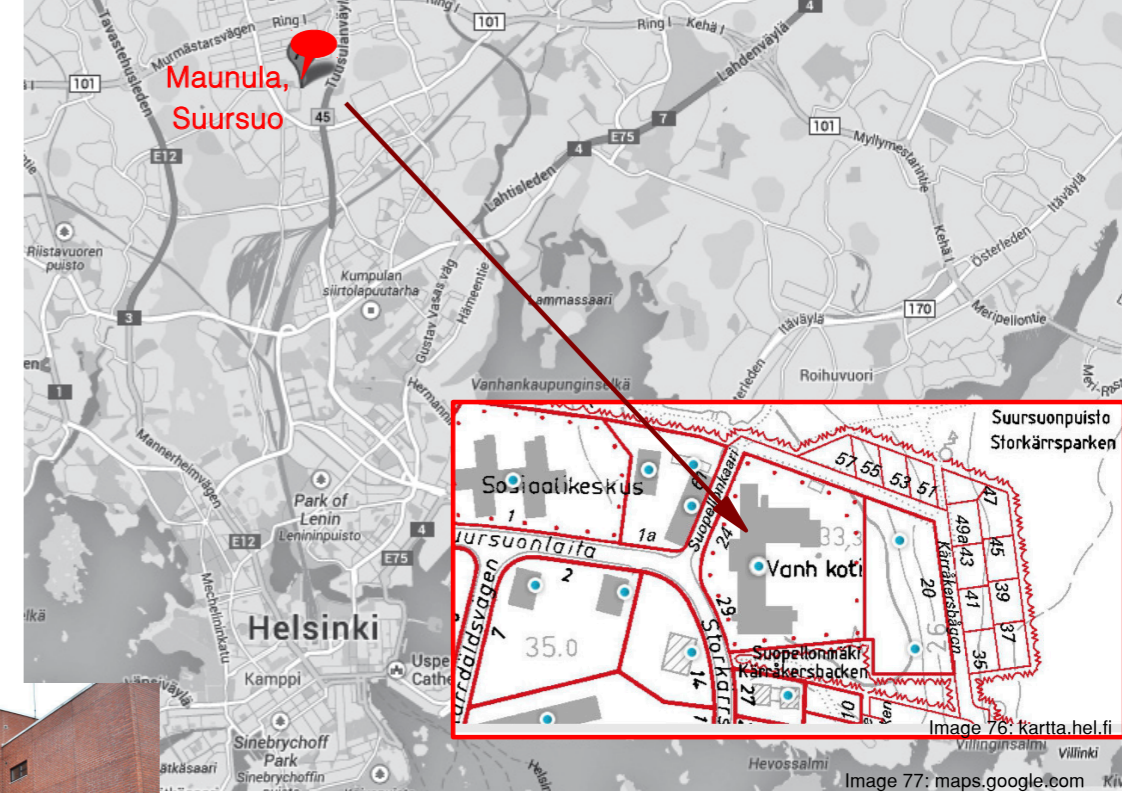


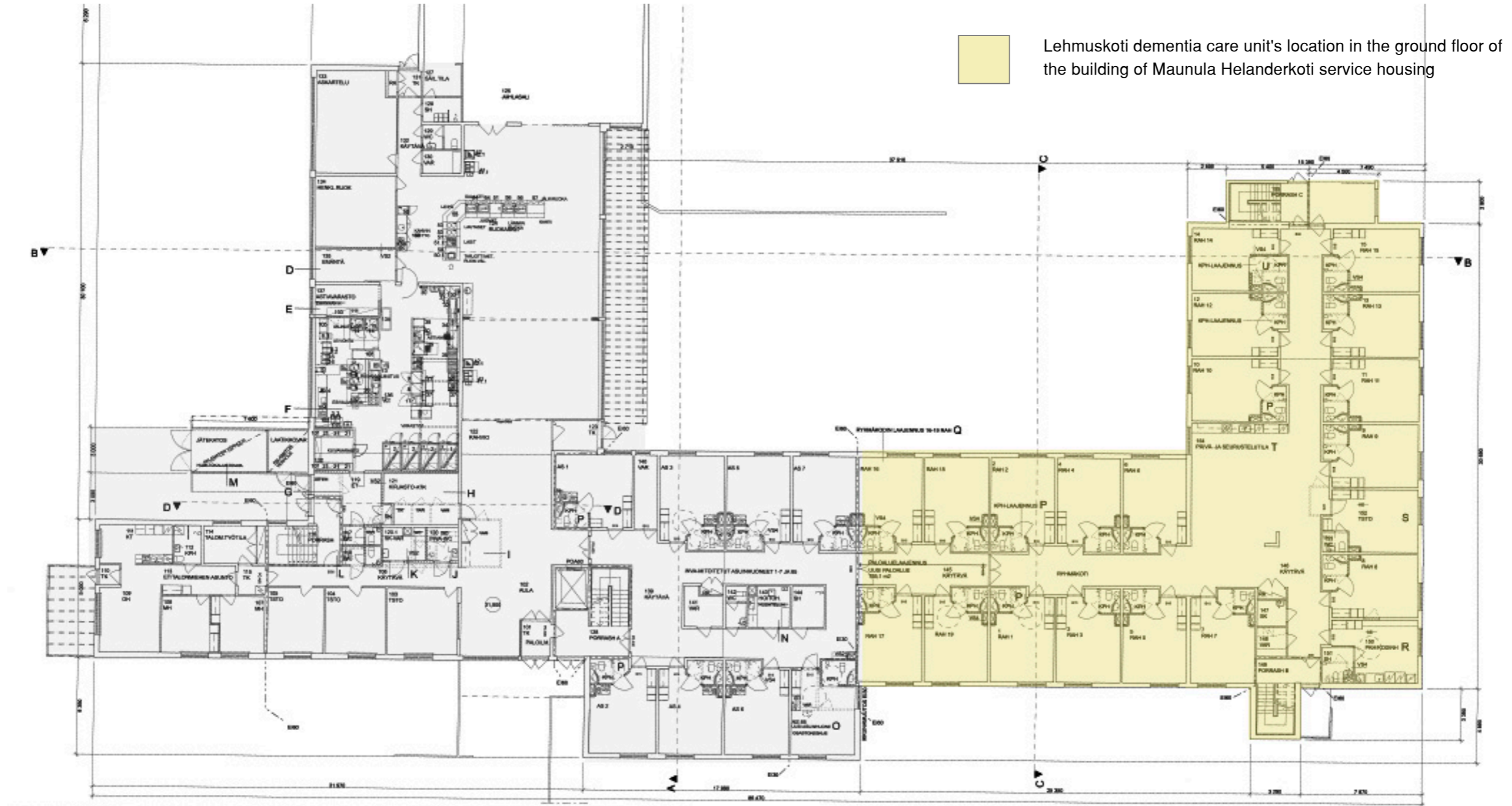
Figure 6: Veselovskaya 2013

Lehmuskoti takes a part of the ground floor of the three-story building. The unit does not have its own entrance from outside. To get in it is necessary to go through Service Housing premises. The building was partly renovated last in 2011.



1. Entrance to Lehmuskoti dementia unit through Maunula Service Housing
2. Dementia unit location





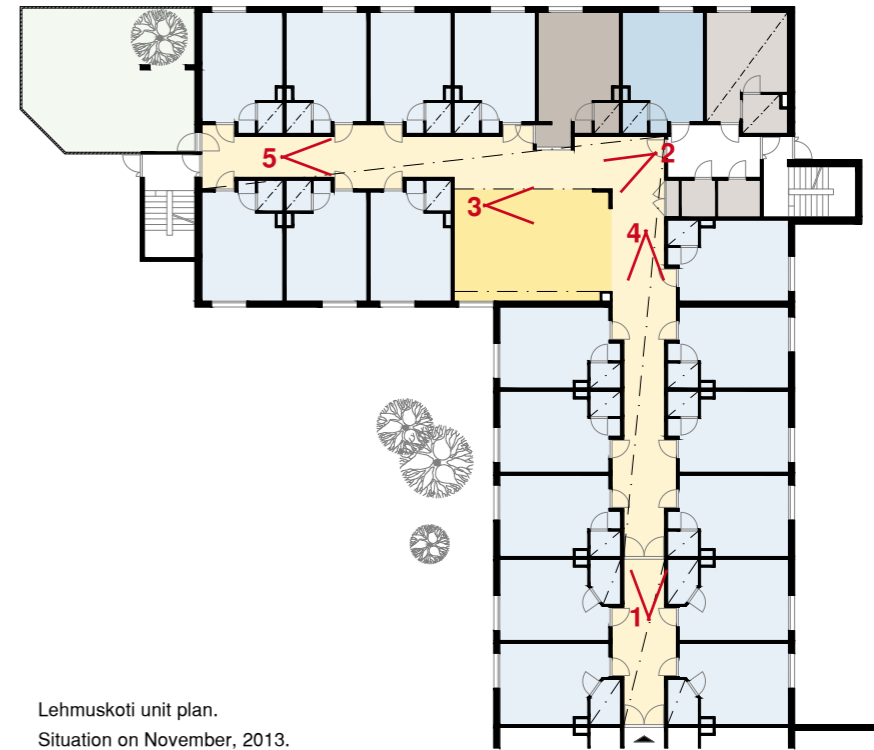


1. Image 81: Veselovskaya 2013

- 1. Towards the dining room, from the entrance
- 2. L-shaped load-bearing wall in the center of the dining/living room



Image 82: Veselovskaya 2013



Lehmuskoti unit plan.
Situation on November, 2013.

Image 83: Veselovskaya 2013

3. L-shaped load-bearing wall, dining room



3.

Image 84: Veselovskaya 2013

4. Corridor view



4.

Image 85: Veselovskaya 2013

5. Towards the dining room



5.

Image 86: Veselovskaya 2013

5.2 USERS

The dementia unit users are the dementia patients living in the Lehmuskoti, the nurses and patients' close relatives and family members, who come to see their loved ones.

Residents

Lehmuskoti is a facility for patients with mid and late stage of dementia, who can not cope independently anymore with their daily activities and need assisted living.

As far as dementia is untreatable illness, Lehmuskoti becomes the **very last home** for these people. How long do they stay here? It varies from several months to ten years or even longer.

In the last stage of the disease many become bed-patients. On the other hand, surprisingly many demented may remain in quite good physical condition.

At the time of visiting (November, 2013), there were **20 inhabitants** in Lehmuskoti, including two bed-patients. 18 patients live in single rooms and two bed-patients in the same room (next to the nurses' station) together.

The residents' age is from **68 to 98 years**.

Staff interviewing

In Lehmuskoti, I spoke with Riitta Tiilikainen, the director of dementia unit (13.11.2013). She emphasized the importance of the common space: "The residents like to stay there. **They go towards people and light**".



Image 87: Veselovskaya 2013

According to Riitta, well done unit should be safe, properly lit, awaking to move, activating. It would be nice to have more windows to observe the seasons' change. Her main wishes were to have the space homelike and some activities offering.

On 20.11.2013 I interviewed three nurses of the unit. They told me about the routine and challenges of the care work. Some of them referred to the patients' problematic behavior, related to the environment.

The nurses mentioned insecurity of the kitchen unit (the renovation was planned), "wanting to leave" (poispyrkiminen), wandering (vaeltelu), inability to find own room. Some patients had aggression and anxiety attacks, going with loud screams. One patient was dangerous for others, so the single room's doors should be held locked.

The nurses think that the biggest defect of this space is the strong feeling of facilities, lack of nature, lack of the activities for patients, sometimes disturbing noise from the TV.

"Tekemistä" -
Meaningful
activities

"Kodinomainen
ympäristö" -
Homelike

Ikkunoita,
avaruutta -
Windows,
open space

Luontoa -
Nature

Nurses' wishes

5.3 ANALYSIS OF THE EXISTING SPACE FROM THE USER'S POINT OF VIEW

First time I visited the site 07.11.2013. I was interested in so called semi-private premises - spaces which are in residents' use other than their single rooms.

Corridor

Long corridor, no windows, no daylight, yellowish colour. The supper time was just over (18:00). An aged lady was moving from the dining room along the corridor towards the unit's exit door at the very end. She was in quite good condition, could move without any help. Corridor was straight and well lit, she could see the door from far away and keep the destination easily in her mind during the way. She reached the door, found the handle and tried to open. It was locked as it should be, because of the safety reason. The elderly lady started to knock on the semi-transparent glass. She could see through the glass there was another space behind the door. "This door is always locked",- she commented with strong disappointment. The exit door's visibility makes the patients' "wanting to leave" stronger.

Doors of the residents' single rooms

The doors to the residents' rooms all look the same. For demented people it is really difficult to identify own door without any visual or other help. According to the nurses, only from two to five residents were able to find their own room independently.



1.

Image 88: Veselovskaya 2013

1. Corridor towards the unit's exit door.

2. A lounge of four single rooms' near the unit's exit door



2.

Image 89: Veselovskaya 2013

Dining/living room

There is quite large social space in the center of the dementia unit, having functions of dining and living room and working as a space for activities.

The space has only one window. There is lack of day light.

The meals come ready from Service Housing premises, being cooked there in a professional kitchen. However, in the dining room there is a small kitchen unit meant for staff and located in the middle of the space. Because of it's location it is easily accessible for patients and dangerous for them (cooker, steam table etc). Kitchen can not be left unattended. There is a note on the wall: "Do not place anything on the cooker, please".

As about the offered activities, there is "tuolijumppa" (chair gym) for patients once a week. Another one is watching TV and listening radio in the dining/living room. There is really lack of activities, especially for residents who could and wish to do something.

1. Dining room, the kitchen unit.



Image 90: Veselovskaya 2013

2. The only window and a wall-mounted TV screen.



Image 91: Veselovskaya 2013



3.

Image 92: Veselovskaya 2013

3. Dining room towards the nurses' station.

4. Summer terrace.



Image 93: Veselovskaya 2013

Summer terrace

There is about 65 square meter large fenced terrace, which can be reached from the end of the distant corridor. For residents it is open in summer time only.

Using the terrace is the only possibility for patients to stay outside, unless their family members or a volunteer help them.

5.4 LEHMUSKOTI PREMISES' SWOT ANALYSIS

Strengths

- Rectangular grid, intuitive layout
- Kitchen unit integrated into dining/living room
- Patient rooms entrances are grouped by four, forming entrance lounge areas
- Summer terrace

Opportunities

- Open space for social contacts, activities
- Corridor: suspended ceiling can be used for lighting
- Corridor: walking opportunity
- Entrance lounge areas can be personalized
- Single rooms big enough for personal belongings and end-of-life privacy

Weaknesses

- No own entrance from outside
- Kitchen should be supervised (insecure)
- No toilet at the dining/living room
- The only window in the dining room => no day light
- Low ceiling (2400 mm)
- Lighting (glare)

Threats

- Too many patients (20)
- Seldom outdoor recreation
- Space for "silent room", other activities?
- Corridors with dead ends
- Impossible to organize the walking loop
- Entrance door visible from far away

Figure 7: Veselovskaya 2013

6. TASKS. SETTING THE SCOPE OF THE DESIGN

Lehmuskoti dementia unit consists of the following premises: dining-/living room, two corridors, patients' single rooms, nurses' station/office, laundry, assisted shower, utility premises and the fenced terrace outside.

I was interested in semi-private premises to redesign: **dining-/living room** and **corridors**. In addition I suggested to add to the unit a few new functions got from the research part, like a **silent room**, multisensory room and craft/activity room.

Premises to redesign



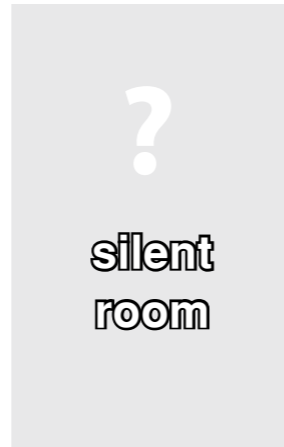
corridor

Image 94: Veselovskaya 2013



dining / living room

Image 95: Veselovskaya 2013



silent room

6.1 FUNCTIONAL AND WELL-BEING TARGETS

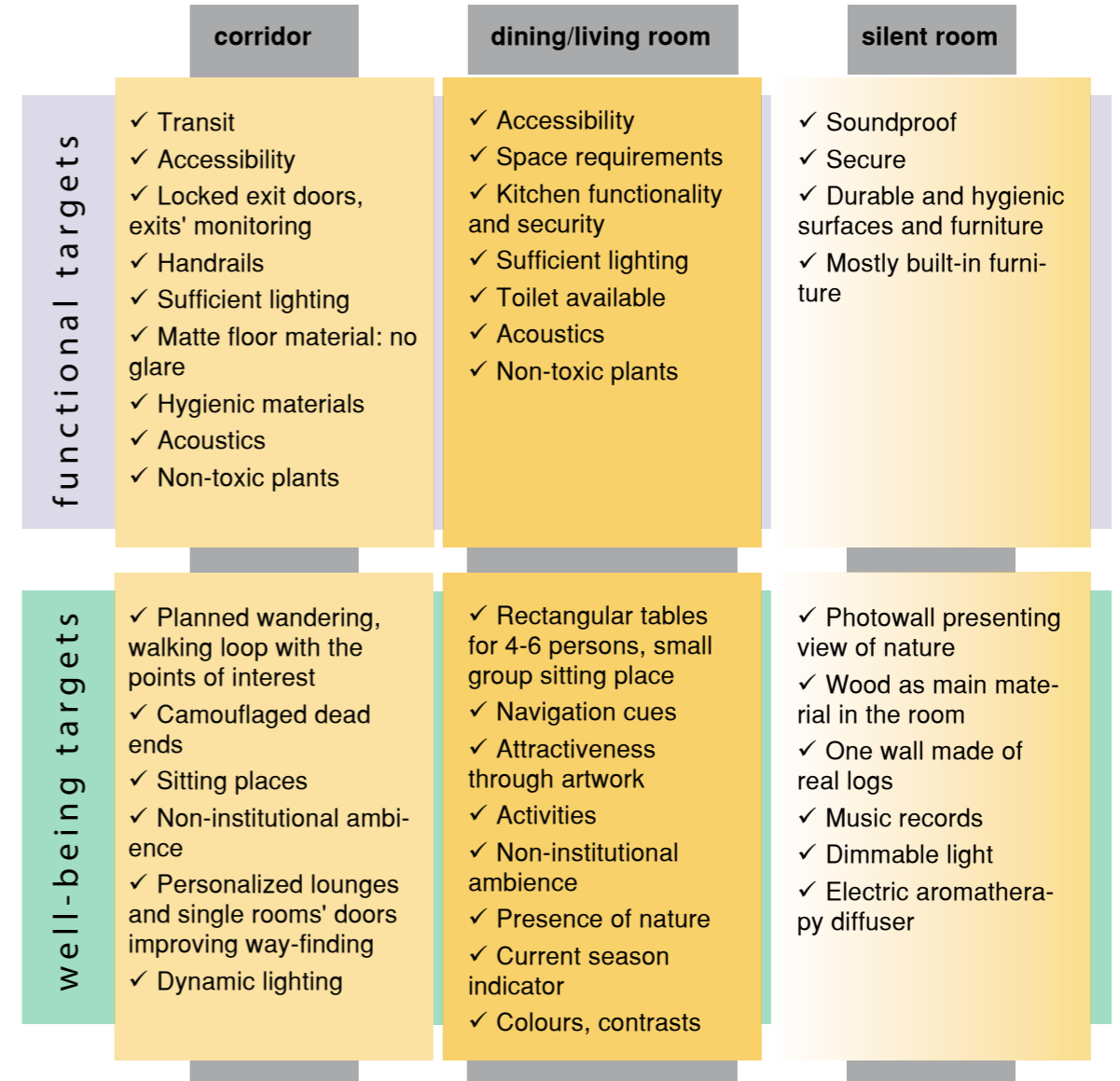


Figure 8: Veselovskaya 2014

6.2 STYLE AND AMBIENCE TARGETS

From my very first visit the site I knew I have at least to change the unit's **atmosphere**. To change to what?

Many researches refer to necessity to create homelikeness. The Lehmuskoti staff presenting its wishes mentioned home-like ambience repeatedly as well. But as it was mentioned in chapter 4, people can have different expectations about home-feeling. We came back to the fourth chapter's question:

How to realize homelikeness for a group of very different people?

Note No. 1: Expectations about home-feeling may differ



Image 96: media.etuovi.com



Image 97: www.aurinkopaikka.net

The second question is:

How to apply homelikeness to the facilities?

Public buildings often have characteristics, which do not fit into anyone's expectation of "home". It is unlikely that any home has such a long corridor. The scale does not match.

Note No. 2: The scale does not match

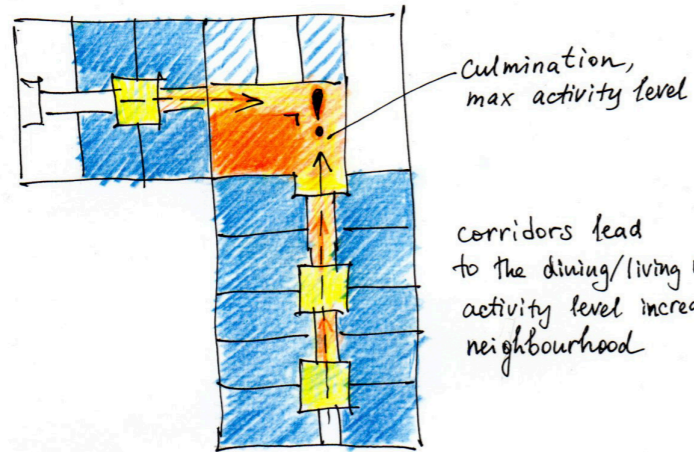
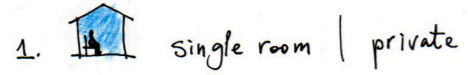


Image 98: Veselovskaya 2013

Facilities' public or semi-private premises such as corridor and dining/living room are not private spaces by their function, consequently they cannot be truly homelike.

In this case, the idea of homelikeness inevitably transforms when applied to an institution. Probably the wishes to have the space "homelike" meant "not like facilities", as an antonym for the term "institutional".

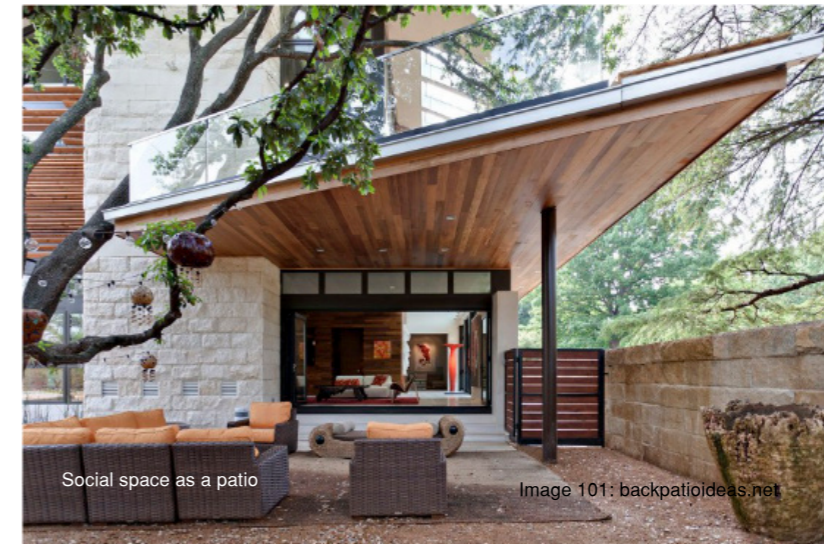
The corridor and the dining/living room in reality have semi-private character. We do not have to hide this fact, especially because people tend to treat the style of a public or semi-private space more tolerantly as compared to their own home style.



Corridors lead
to the dining/living room
activity level increases
neighbourhood



Image 99: Veselovskaya 2014



6.3 COST TARGETS

Budget estimation was not a part of the study. The target was to create an ideal project for the Lehmuskoti dementia unit.

6.4 SETTING THE SCOPE OF THE DESIGN

WHAT?

Redesign proposal for corridors, dining/living room, silent room. The main task was to show in a visual way how the concept of dementia-friendliness and relieving the symptoms can be applied to the particular space.

WHERE?

Semi-private premises of Lehmuskoti dementia unit.

FOR WHOM?

Lehmuskoti's user: demented residents, staff, visitors.

WHY?

The existing environment of the unit is not dementia-friendly enough.

HOW?

The main task is to present the new ambience and spatial changes. The solutions presented in the thesis are on the level of a concept. They present the new atmosphere by the sketches and images of visualisation. Although the project is imaginary it can be elaborated and implemented if needed.

7. DESIGN PROSESS

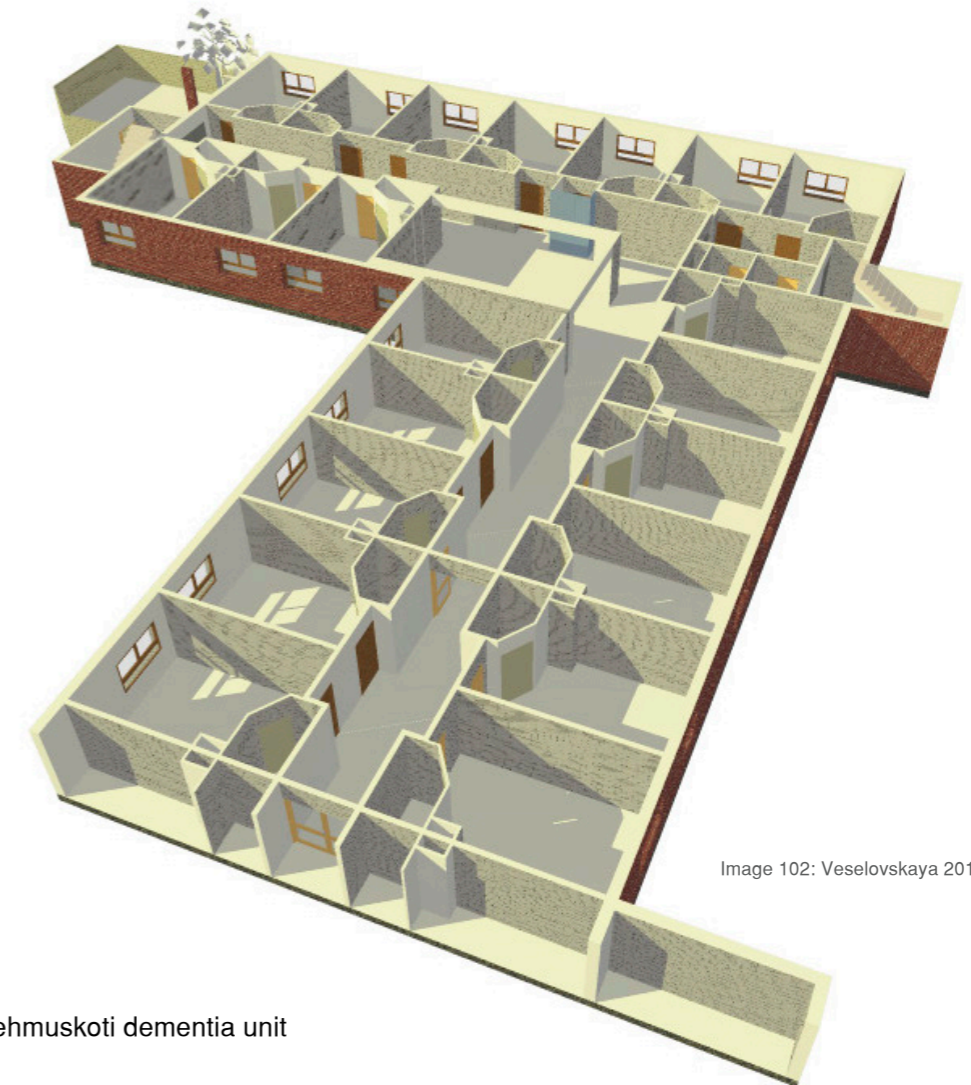


Image 102: Veselovskaya 2014

Lehmuskoti dementia unit

7.1 PREMISES ACCORDING TO THE FUNCTIONS

I started with rethinking of existing Lehmuskoti's layout according to the needs of the residents and the staff. I reorganize the facilities' functions in order to place new ones, including "silent room". Thus the number of single rooms will be reduced. Where the new functions should be placed? To answer this I went to another task: the corridors.

The corridors are the only inside space for walking. In an ideal case I would like to have a loop, a closed route. In Lehmuskoti it was not possible, not even in the dining room, because the space has to be furnished. We have only two corridors with dead ends, which is a very unwanted characteristic.

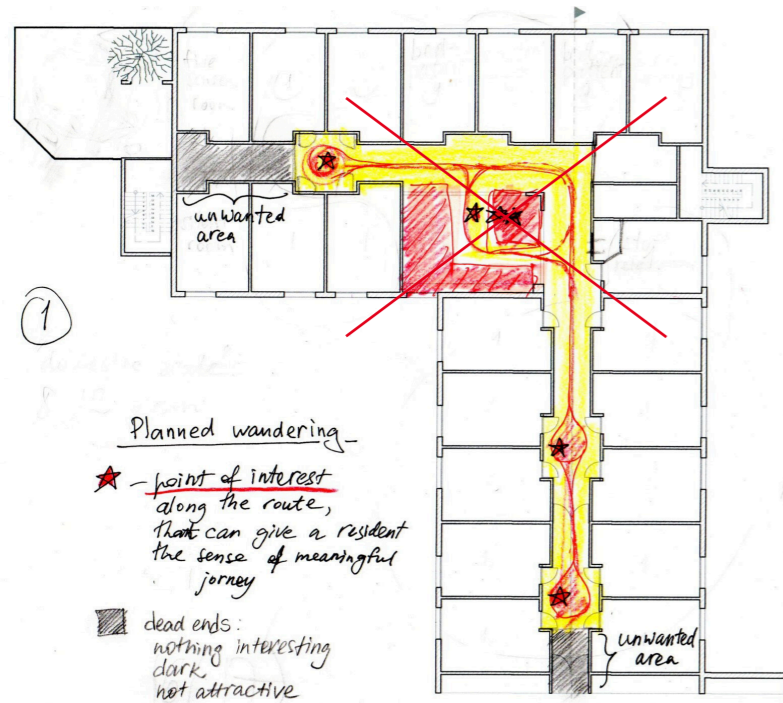


Image 103: Veselovskaya 2014

Fortunately there are lounges along the corridor. I assign them the function to turn the walking resident around, to distract them from the unwanted areas. Important! - the walking route should loop at the most distant lounges. The lounges should have some points of interest and seats to get rest.

How to make the patients to prefer to follow the designed route, avoiding unwanted areas? The means like floor material change and darkness can be helpful. By functional requirements, motion sensor light is needed for other users than patients.

I need to distribute the residents' single rooms according to this "wandering plan".

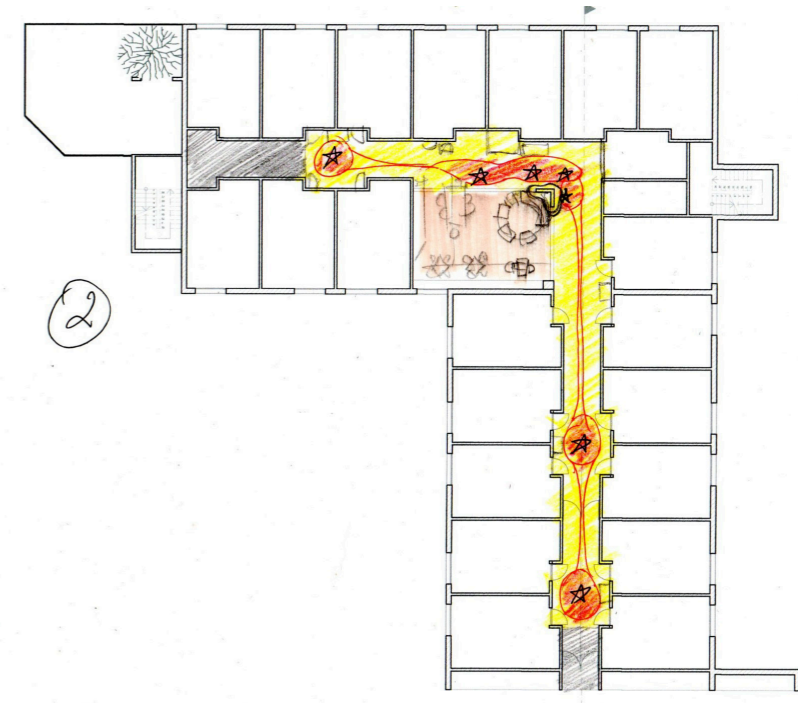


Image 104: Veselovskaya 2014

In order to have U-turn in the lounge (1) I visually close the rest of the shorter corridor. In this case, the two rooms, located in the end of corridor, should not be residents' rooms. They can be silent and craft/activity rooms. These rooms will be used only by the staff permission and under supervision, thus the residents do not to be aimed there.

The other unwanted area is the unit's exit/entrance door, located at the longer corridor's end (2). It should be visually closed in the similar way.

Because of functional requirements, I place bed-patients into the single rooms situated next to the nurses' station. Direct access to the assisted bathing can be organized from the right room.

The important point is to have a toilet available next to the social space. Indeed, dining/living room did not have any toilet for residents. So I suggest to use single room's toilet for this purpose (relocating the door opening) and to establish multisensory room in the released premises (3).

Now we have answered the question "which rooms to use for the new functions and why".

This makes:

- 14 single rooms (18 before)
- 2 single rooms for bed-patients (one room for two bed-patients before)
- Planned walking "loop" for the residents
- Silent room
- Multisensory (the five senses) room
- Activity room (attended activities like craft, contacting pets etc.)
- Dining/living room (has not changed).

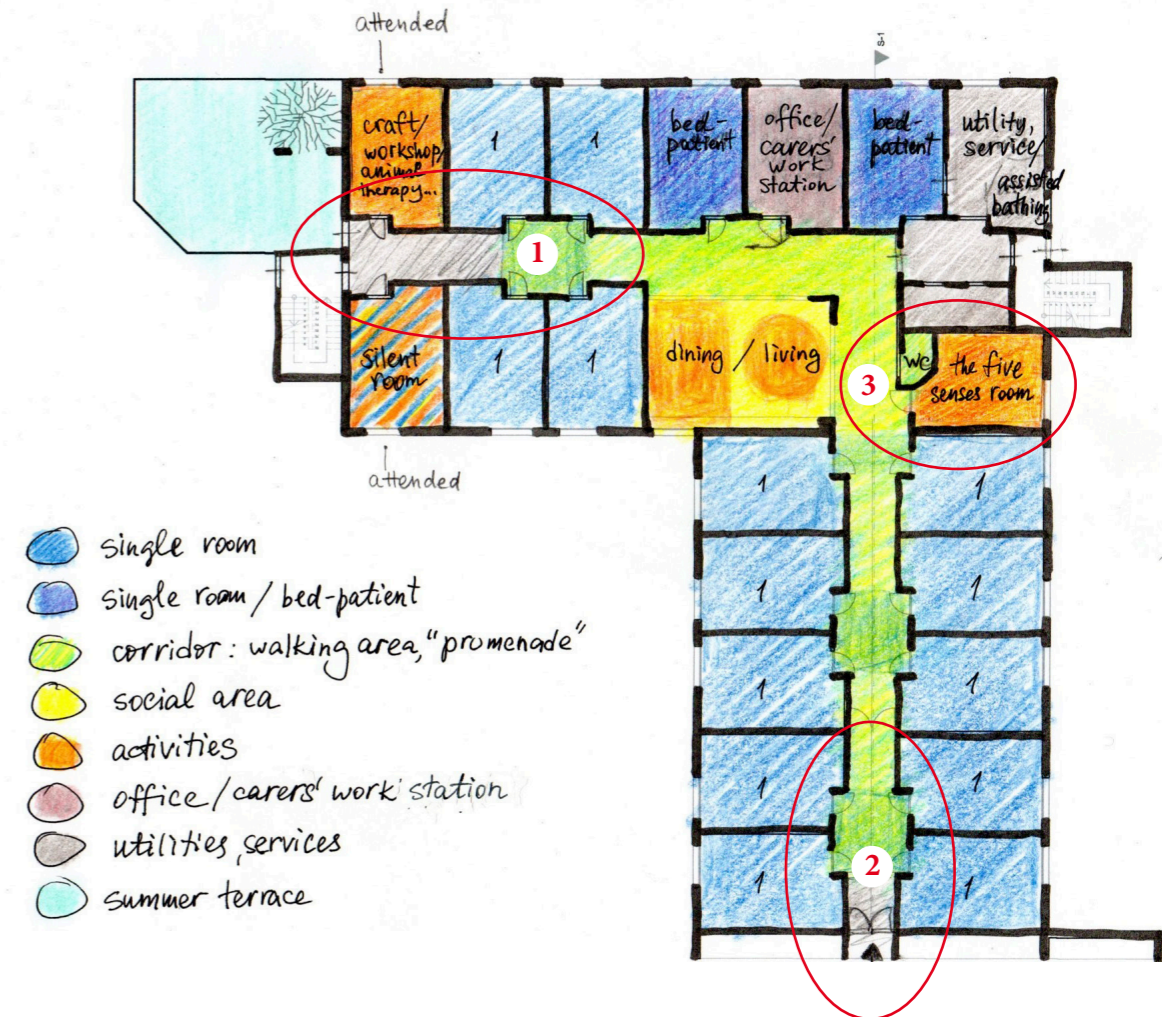


Image 105: Veselovskaya 2014

7.2 SKETCHING

Corridor

According to conclusions of chapter 6.2, both the corridor and dining/living room as semi-private spaces should not pretend to look homelike. What character will they have? The corridor's functions are to lead successfully to own room, to distract from unwanted areas, to encourage residents to walk, to be attractive, to offer something to do. Lighting has an important role: lounges can be lit by lighting panels looking like a skylight.



Image 106: Veselovskaya 2013

Looking for the ambience: walking way.

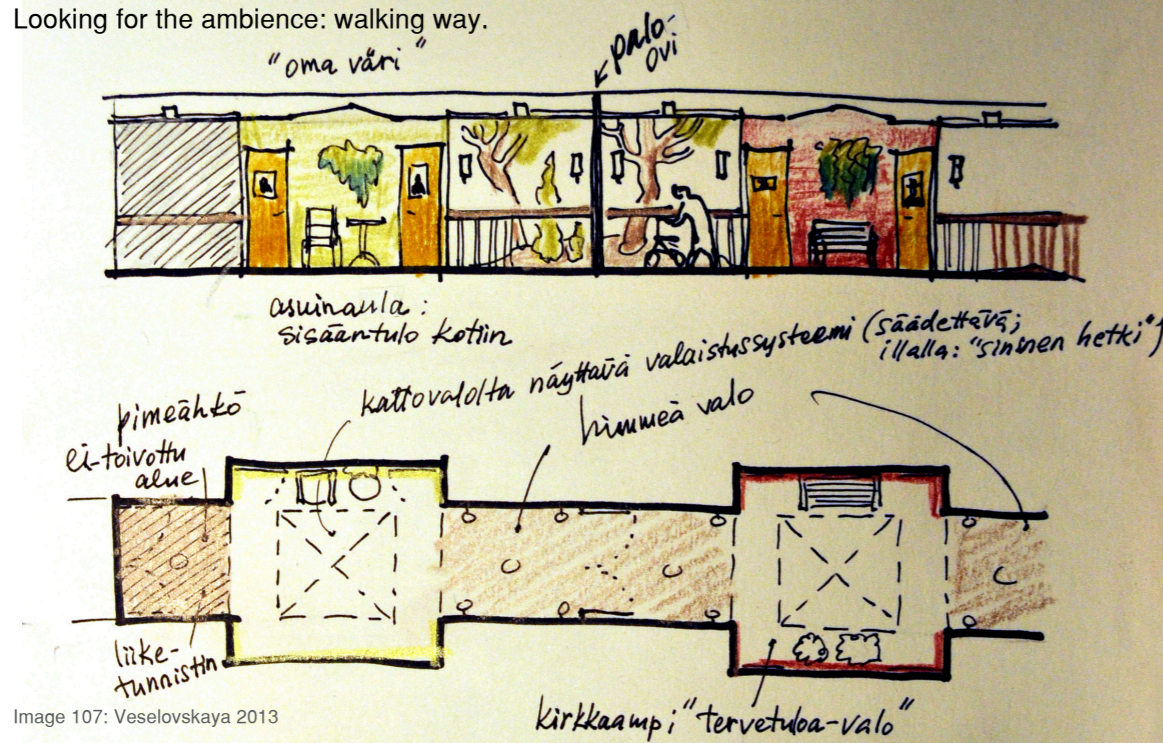


Image 107: Veselovskaya 2013



Image 108: Veselovskaya 2014

If the corridor is a promenade then the social space can be a patio.

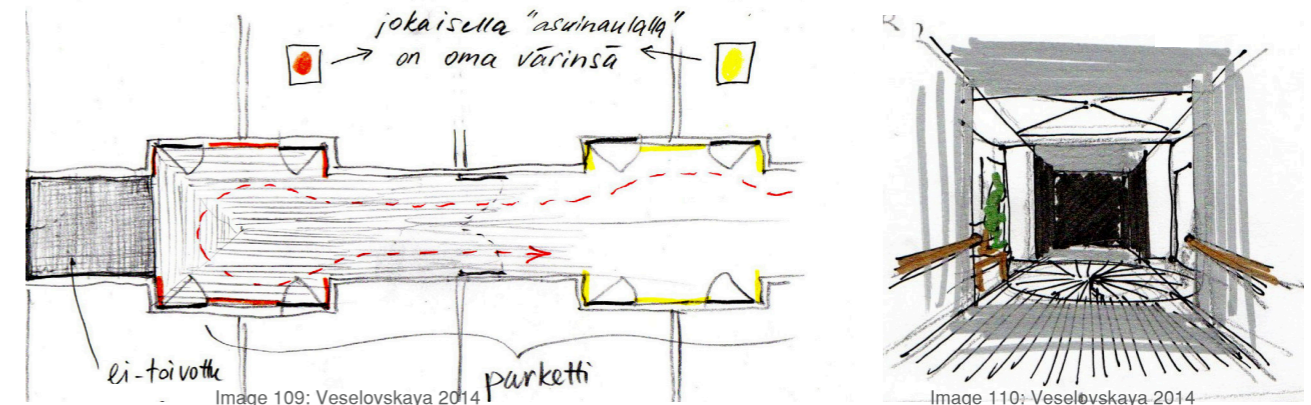
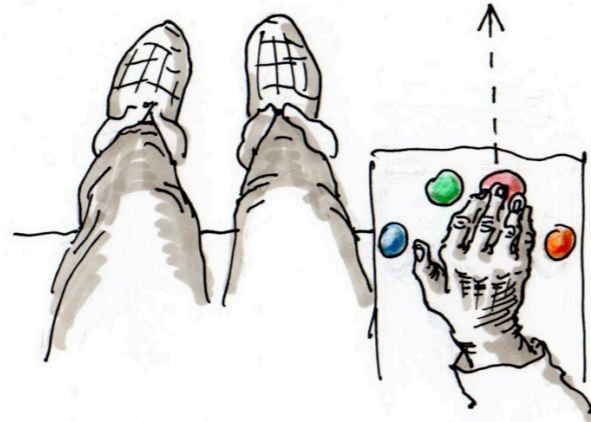
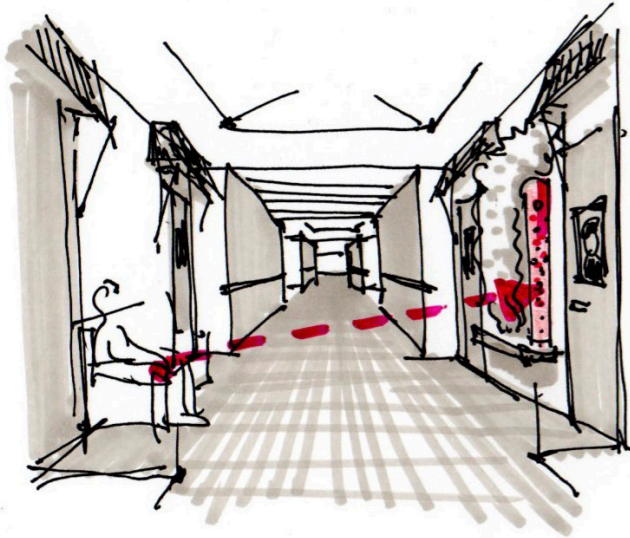


Image 109: Veselovskaya 2014

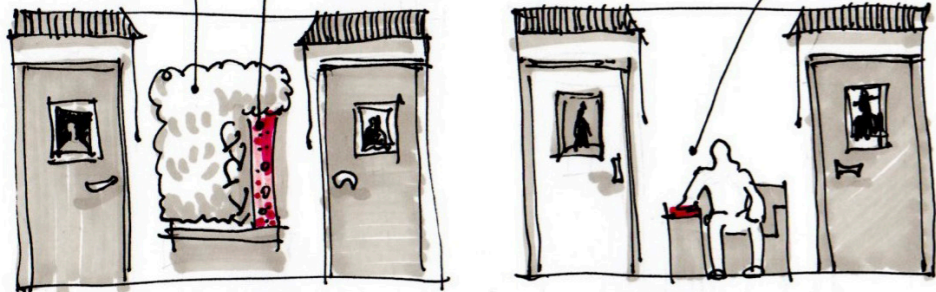
Image 110: Veselovskaya 2014

Solving the dead end issue.



bubble colour control
from the console

vertical garden - bubble tube



point of interest in the corridor: multisensory lounge

Image 111: Veselovskaya 2014

To introduce safe activities into the space, I design a multisensory experience lounge. The bench with integrated console for controlling the bubbles' colour would have a calming effect. It could work as a wayfinding cue as well.

Dining/living room

The space is located on the two corridors' intersection, so the L-shaped wall has a strategical position. It can be used as a navigation mark.

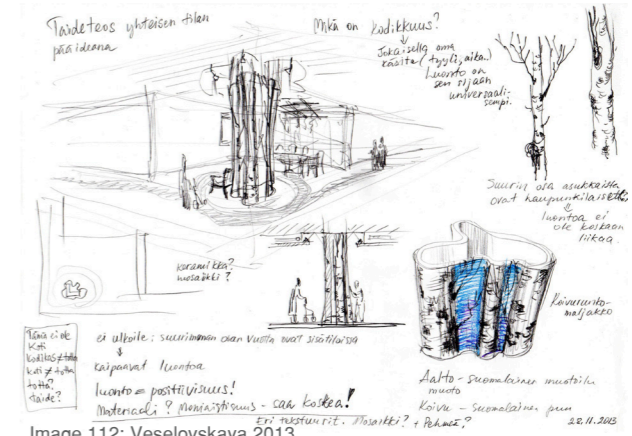


Image 112: Veselovskaya 2013

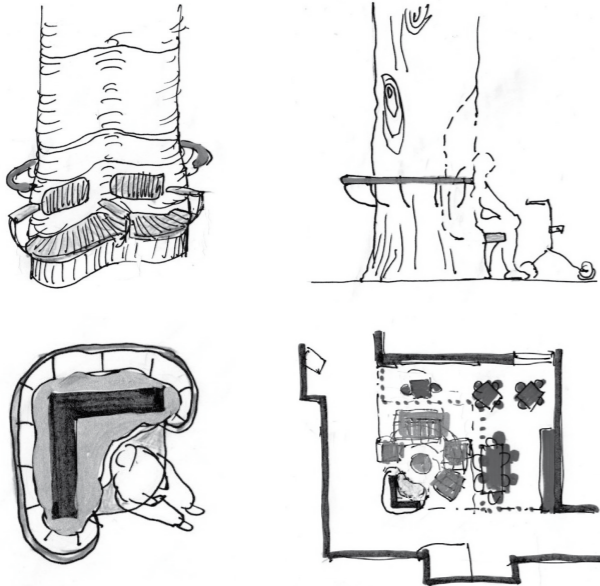


Image 113: Veselovskaya 2013

To make this point memorable and attractive, I try the idea of an artwork. I dress the wall with curved shell finished by mosaic tiles.



Image 114: Veselovskaya 2014



Thinking about the name of the unit: Lehmuskoti. "Lehmus" means linden. Could the L-shaped wall be a linden tree? May be, there could be a sitting place under the "tree"?



Image 115: <http://mtdata.ru>

LINDEN = LEHMUS

timber

- soft and easily worked
- used for sculptures
- good acoustic properties

linden tea

- soothing
- great for relieving anxiety, insomnia and stress

Image 116: upload.wikimedia.org

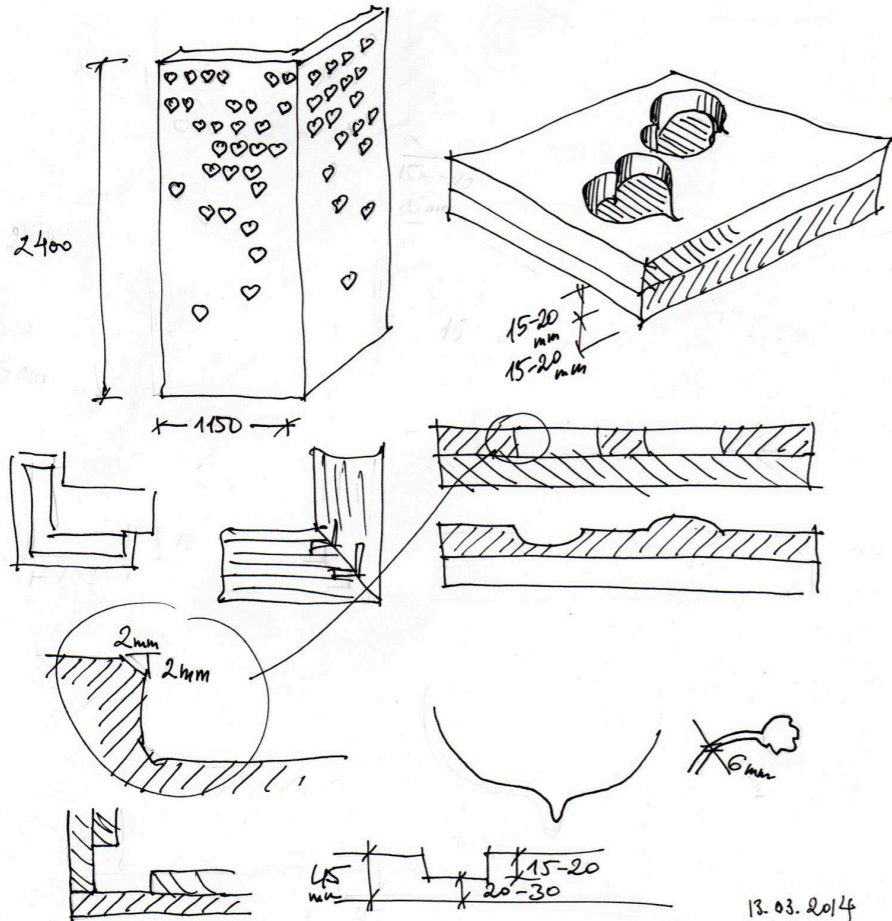
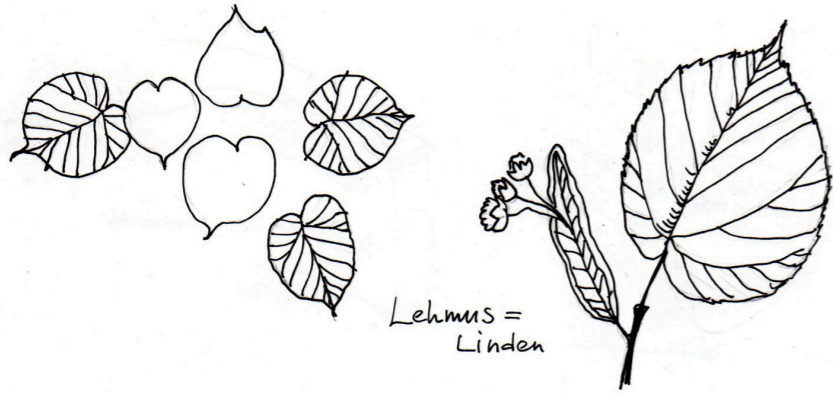
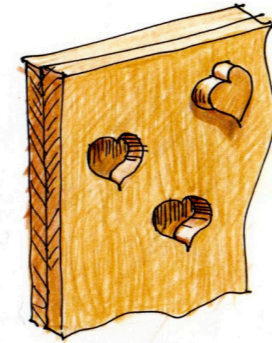


Image 117: Veselovskaya 2014

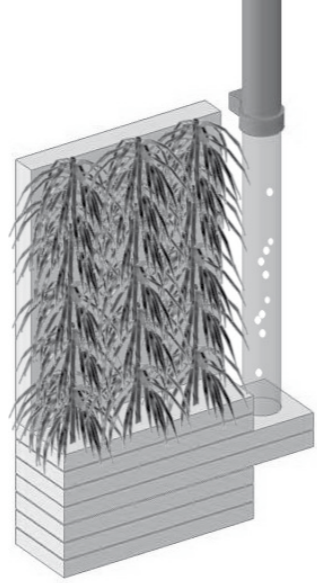
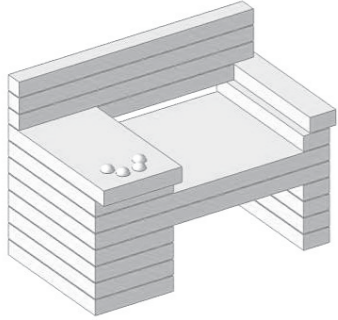


Here is a process of developing the idea of a "linden tree". The object should have a simplified shape and be symbolic enough. I want the residents to use it for their tactile stimulation, so it should be attractive by touch. The material is obviously wood (linden?). The wooden panels are double thick, thus the linden leaf relief can be done by the cut off from the upper layer. The cut pieces are glued on the surface, so the leaves are either convex or concave. The "wall washing" light from above emphasizes the vertical surface's relief.



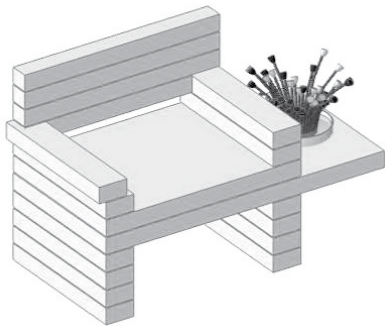
Image 118, 119: Veselovskaya 2014

Sitting places along the corridor.

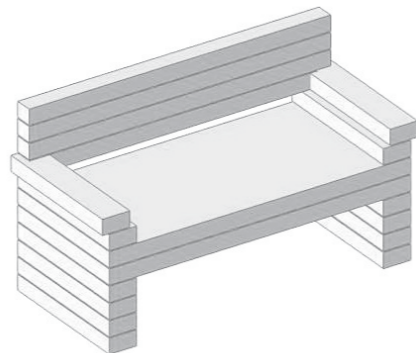


1 & 2. Multisensory lounge's bench with a console integrated into the arm and the bubble tube controlled from there. The panel includes the green wall.

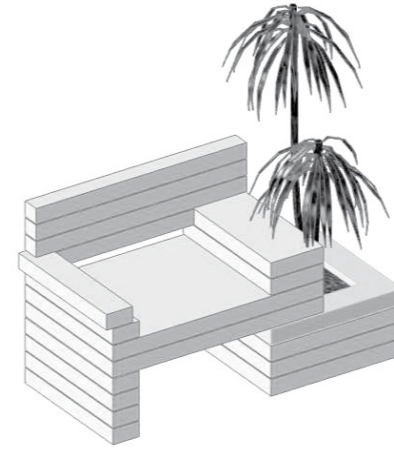
3. Bench with the bouquet



4. Bench for two persons



Models: O.Veselovskaya 31.03.2014



5. Bench with the flowerpot

6. Bench for the dining/living room, attached to the L-shaped wall

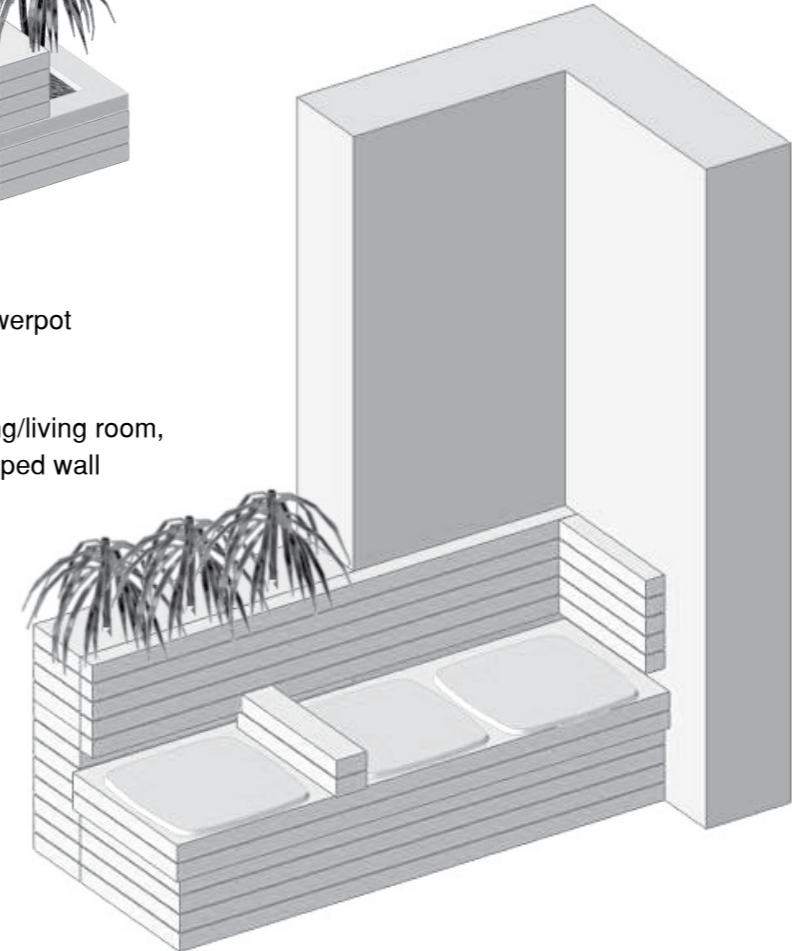
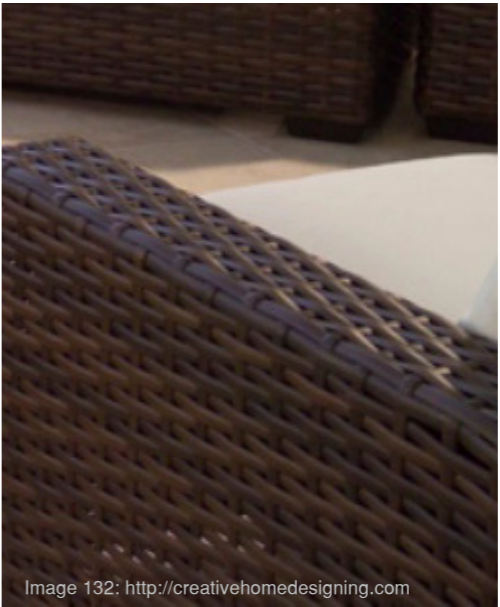
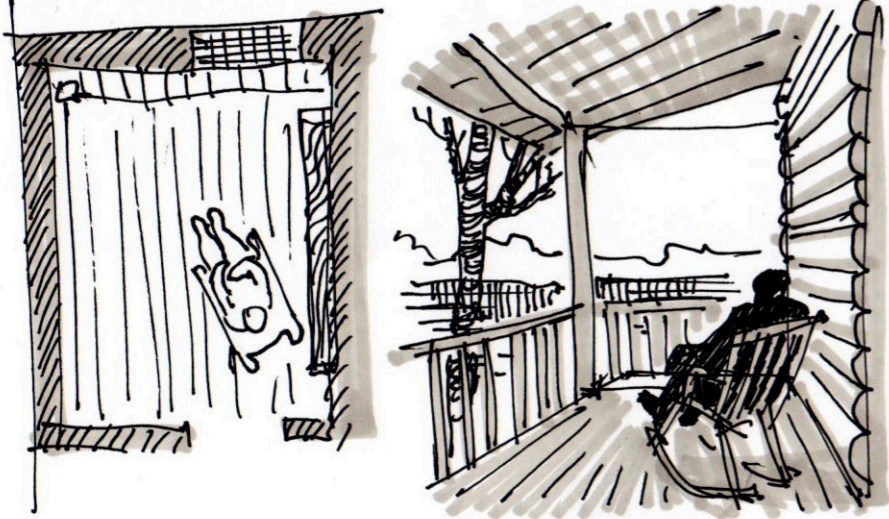


Image 120-125: Veselovskaya 2014

Mood board: corridor and dining/living room

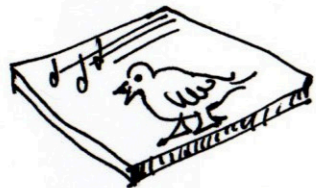


Silent room



silent room ≡
Summer cottage terrace

Wooden log wall
Rocking chair
photowall: lakeside view
aroma: tar ("terva")
soundproof room



CD: sounds of the forest

Image 133: Veselovskaya 2014

Silent room is a way to escape, chill out when overstimulated or agitated. This is like going to the countryside to relax after staying at fuss city. Aged natural materials can work well because the users are seniors. Time can be demonstrated through the materials.

Mood board



Image 134: <http://irmako.files.wordpress.com>



Image 135: <http://m.rgbaimg.com>



Image 136: <http://nuppulinna.blogspot.fi>

7.3 SURFACES. LIGHTING

Floor

Existing floor has a shiny surface. It reflects the light which makes glare. This is unwanted characteristics for dementia facilities, thus the floor should be replaced. The material has to be matte and hygienic, not slippery. Ceramic tiles fulfill these requirements and could support the chosen style (walking area = promenade and patio), because this kind of finishing fits well to the semi-private areas.

Existing floor



Image 137: Veselovskaya 2014

The following requirements should be fulfilled:

- intended use: internal flooring in a public area
- roughness, slipperiness and wear resistant classification

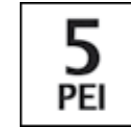


Image 138: www.pukkila.com

- quite even colour, little gradation acceptable

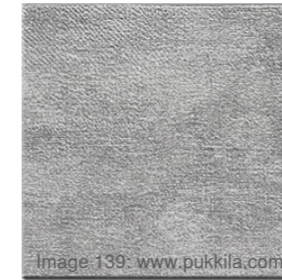


Image 139: www.pukkila.com

For example, Manhattan - Grigio Nolita 50x50 (Pukkila)



Desired pattern

Image 140: archicad-talk.graphisoft.com

Lighting and acoustics



Image 141: Veselovskaya 2013

Lehmuskoti corridor's suspended ceiling.

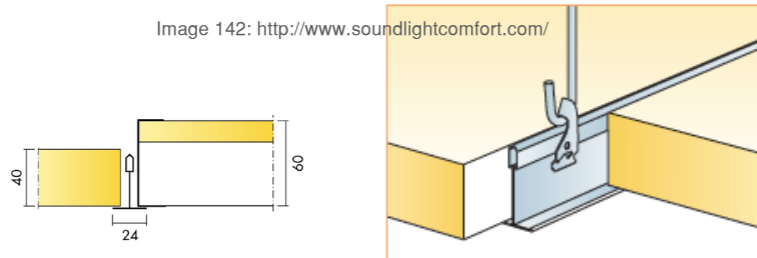


Image 142: <http://www.soundlightcomfort.com/>

I would bring the effect of skylight to the facilities to have an impression of a higher space and presence of day light. A system like Soundlight Comfort Ceiling¹ (Philips) is suitable for this purpose: existing suspended ceiling can be replaced (its height is 400 mm). Both lighting and acoustics issue will be solved at once. The system consists of sound absorbing LED Tiles,

¹ Philips, 2013



Image 143: <http://www.soundlightcomfort.com/>

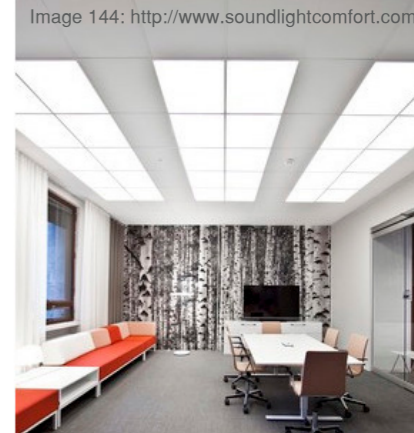


Image 144: <http://www.soundlightcomfort.com/>

sound absorbing Tiles, Control box, OccuSwitch DALI, and the Connect grid system.

- Indoor climate: certified by the Indoor Climate Labelling, emission class M1 for building materials and recommended by the Swedish Asthma and Allergy Association
- Fire safety: the glass wool core of the tiles is tested and classified as non-combustible according to EN ISO 1182.
- Lighting performance:
 - Beam angle: 108°
 - Luminous flux: 600x600 700lm, 1200x600 1400lm
 - Colour temperature: 3000K or 4000K
 - Colour rendering index (Ra): > 80
 - Unified glare rating: < 16
- The tiles' sizes differing from the existing hopefully can be made on

order

- I would prefer to have dynamic lighting properties included.

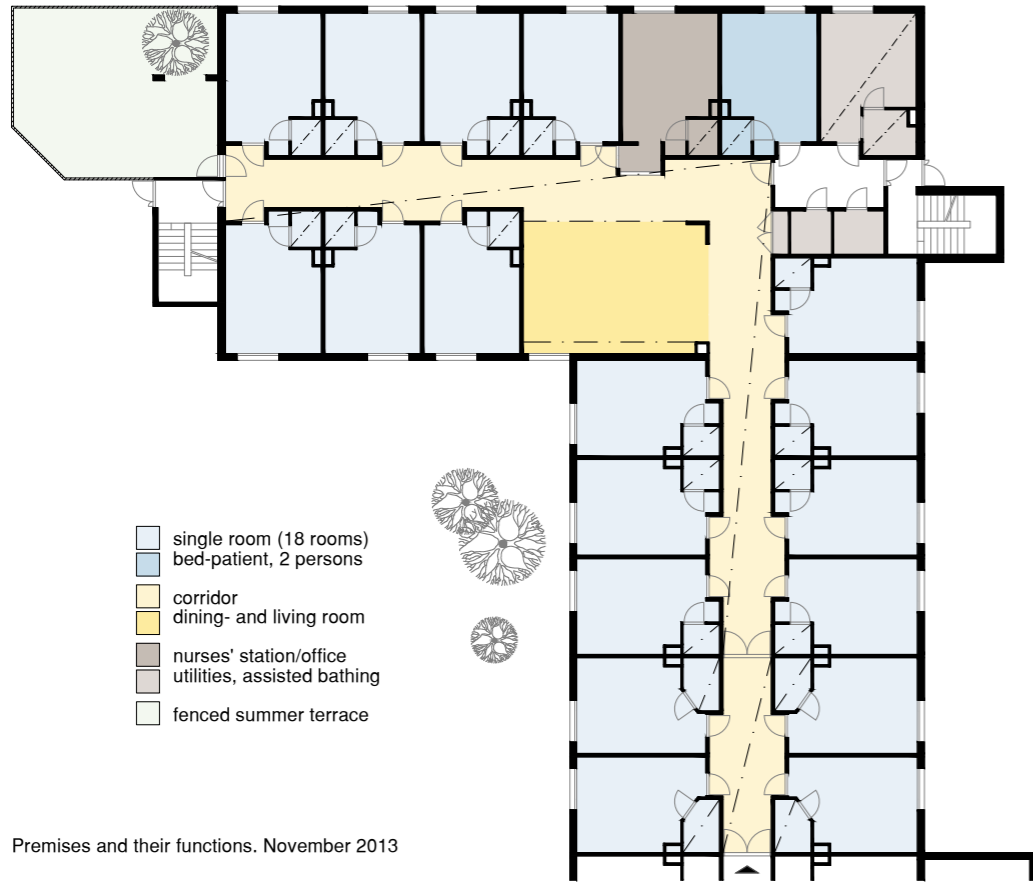


Image 145: <http://www.soundlightcomfort.com/>

8.LAYOUT

8.1 PRESENTATION OF THE DRAWINGS

Changed functions



Premises and their functions. November 2013

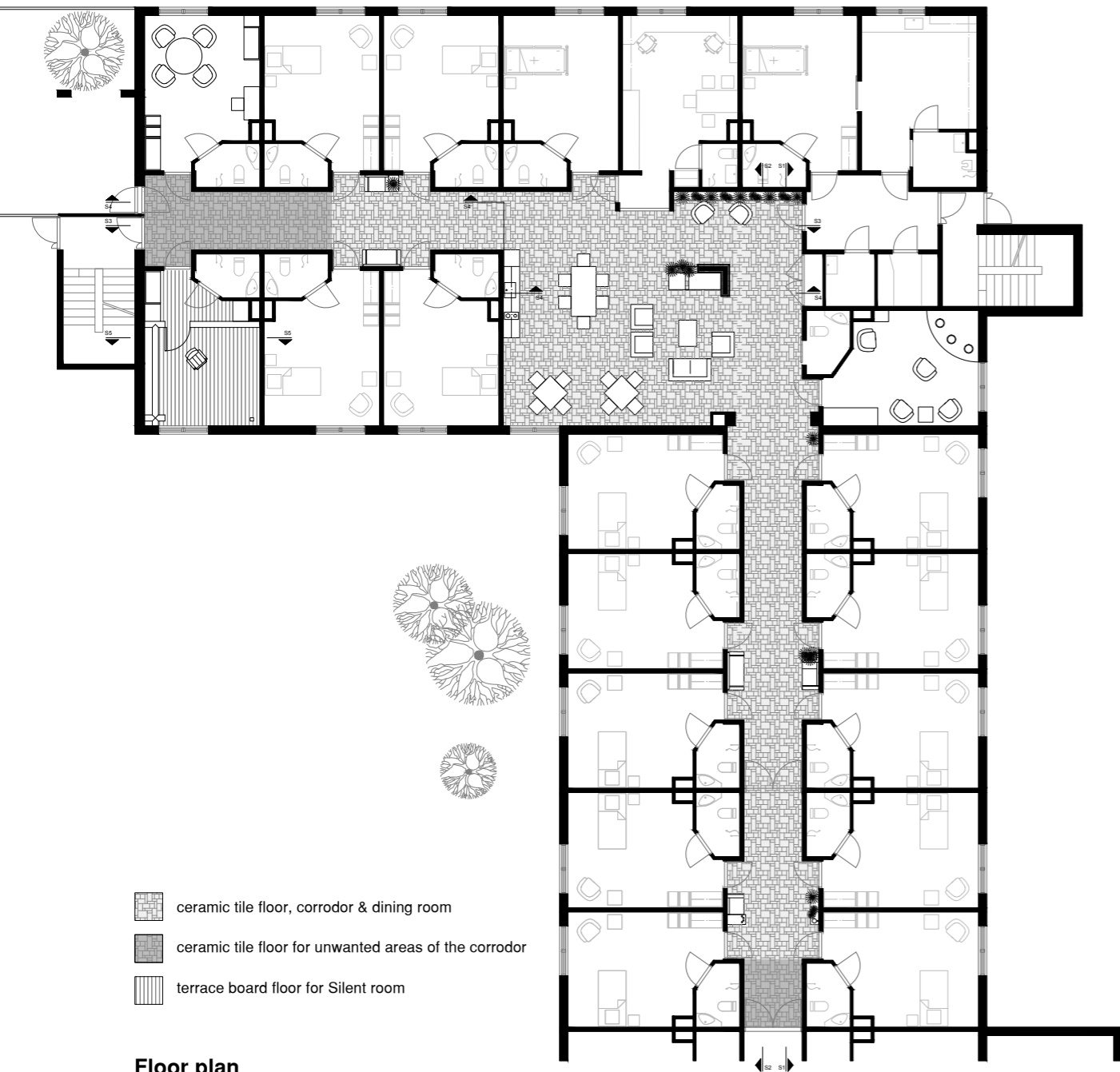
Image 146: Veselovskaya 2014

The drawings show the changed functions:

- Number of single rooms reduced from 18 to 14
- Single rooms provided for bed-patients
- Silent, multisensory and craft rooms added
- Toilet for social area provided
- Accessibility of the single room's bathrooms checked

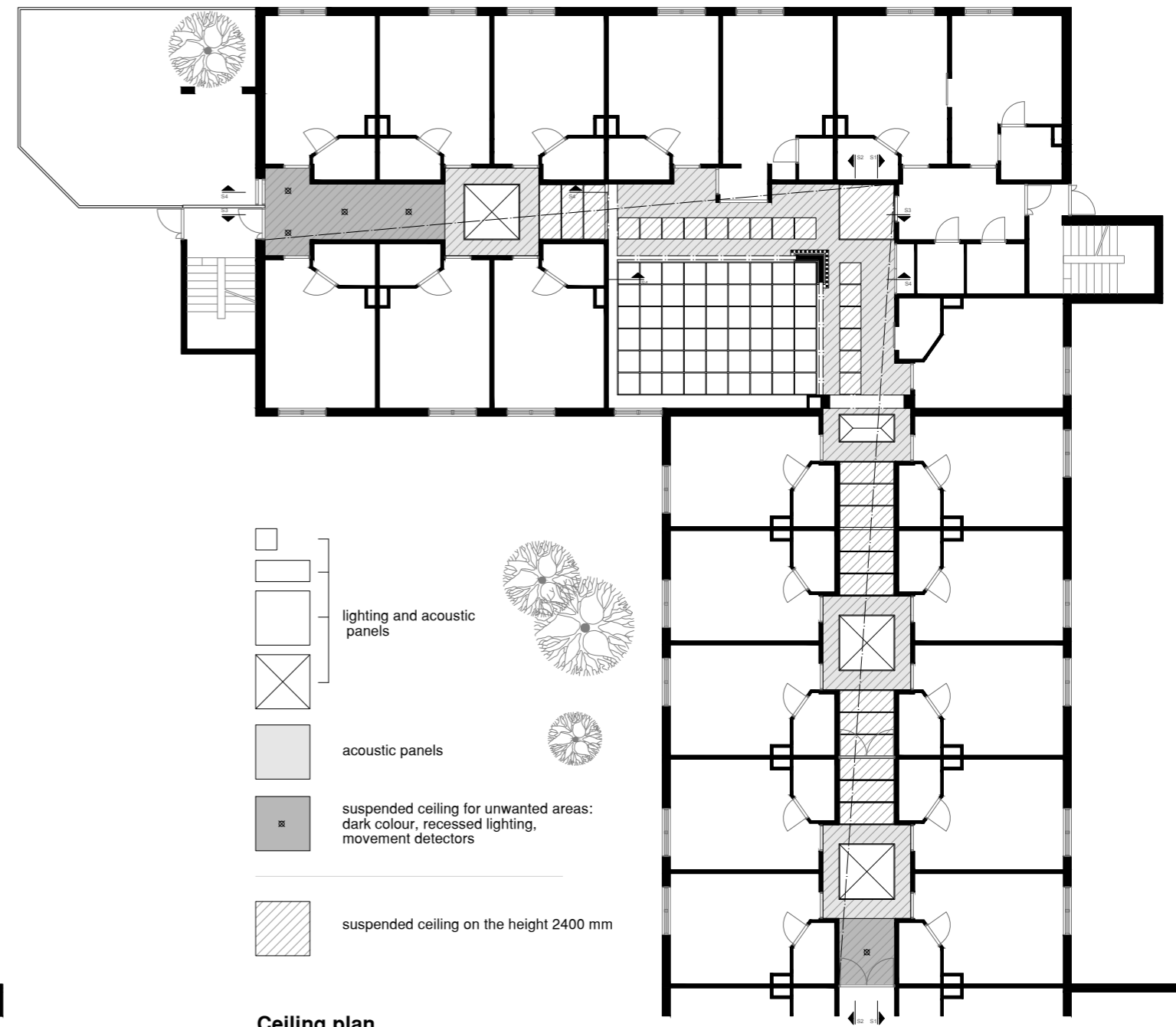


Image 147: Veselovskaya 2014



Floor plan

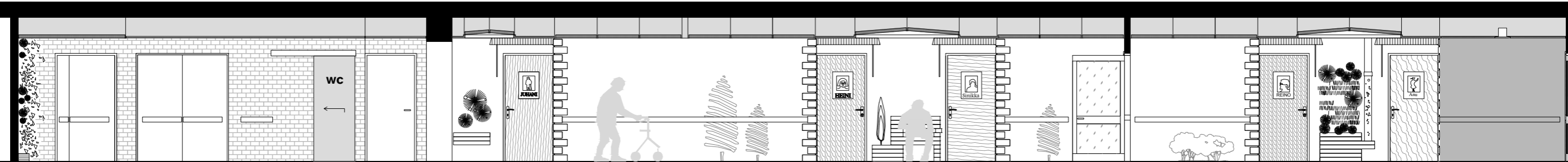
Image 148: Veselovskaya 2014



Ceiling plan

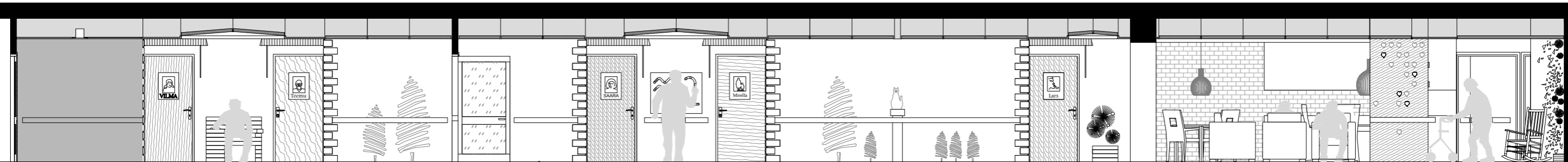
Image 149: Veselovskaya 2014

Section S1: dining/living room & longer corridor



vertical garden toilet for the dining/living room wall painting rest point multisensory lounge with the bubble tube unwanted area

Section S2: longer corridor & dining/living room



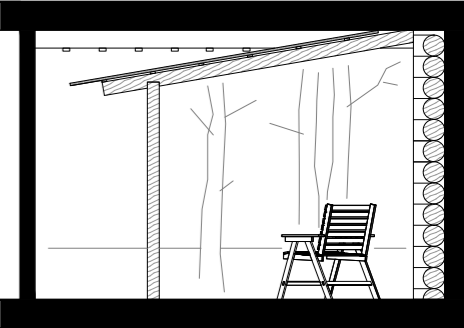
unwanted area multisensory lounge / bench with a console wall paintings activity board wall paintings dining/living room / L-shaped wall with wooden panelling vertical garden

Sections

Image 150: Veselovskaya 2014

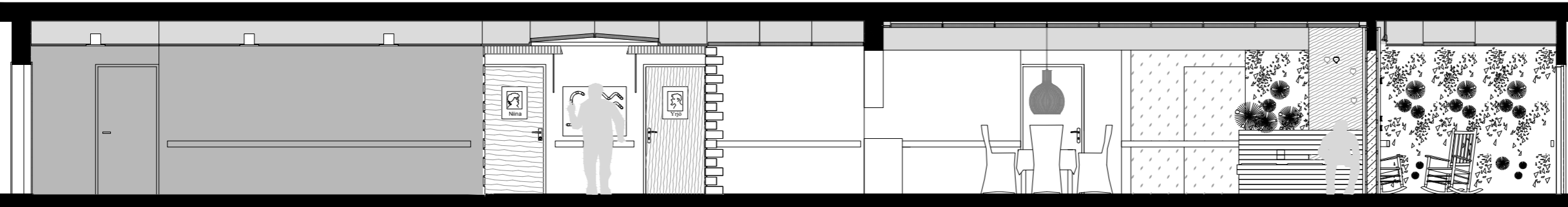
Section S3: dining/living room & shorter corridor

Section S5: Silent room



corridor towards the exit door | L-shaped wall | back-lit poster presenting the current season | dining area | rest point | unwanted area | door to the Silent room | Silent room's photowall

Section S4: shorter corridor & dining/living room

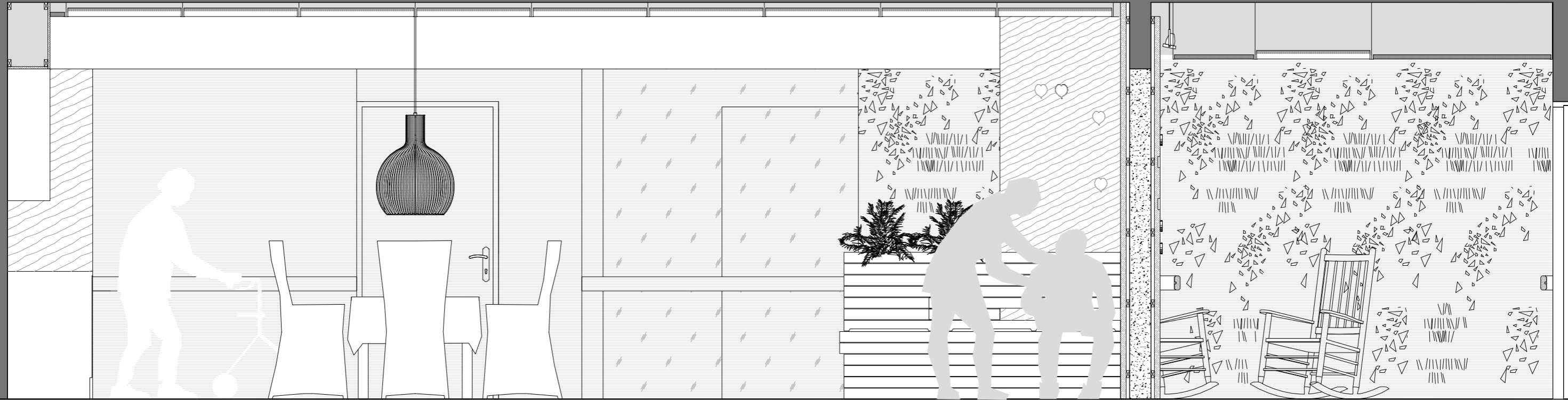


activity/craft room | unwanted area | activity board | kitchen unit | dining area | nurses' station | rest point "under the tree" | vertical garden

Sections

Image 151: Veselovskaya 2014

Section S4-a: Wooden panelling of the L-shaped wall /Ceiling tiles



L-shaped wall panelled by wood

Relief with linden leaves

Illumination of the panelled wall ("light washing")

Led stripe integrated into the handle rail around the wall

Suspended ceiling with lighting and acoustic tiles

Section / Detail

Image 152: Veselovskaya 2014

8.2 RENDERINGS



Image 153: Veselovskaya 2014

Dining/living room: L-shaped wall as a sculpture



Image 154: Veselovskaya 2014

Behind the seating area: back-lit poster presenting the current season ("fake window")



Image 156: Veselovskaya 2013



Image 157: Veselovskaya 2014

Dining/living room: seating area



Image 159: Veselovskaya 2013



Image 158: Veselovskaya 2014

Multisensory lounge and visually closed dead end



Image 160: Veselovskaya 2013



Image 161: Veselovskaya 2014

Multisensory lounge and the view towards dining room



Image 162: Veselovskaya 2014

The bench with the console and the bubble tube with changing colours that can be controlled



Image 163: Veselovskaya 2013

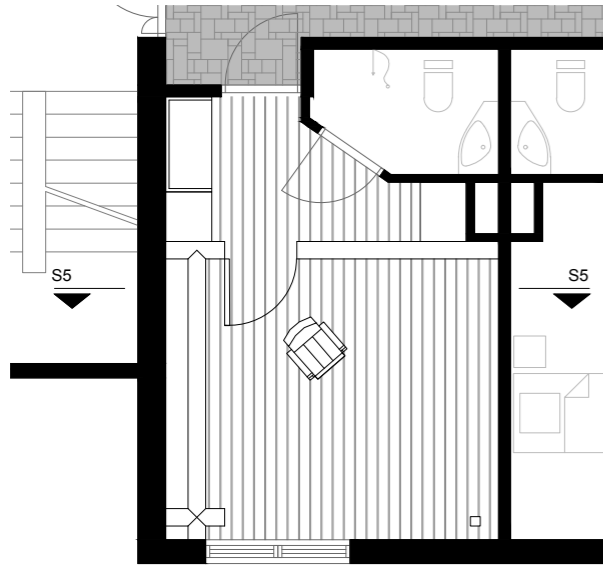


Image 164: Veselovskaya 2014



Silent room imitating summer terrace



Image 165: Veselovskaya 2014

9. ASSESSMENT AND CONCLUSION

9.1 SPACE

Summarizing the changes made to the space, we can list the following:

a) number of single rooms was reduced, which provides more manageable scale of the unit and gives an opportunity to place new functions there

b) well-being architecture's means are used

- Artwork (L-shaped panelled wall looks like sculpture)
- "Fake window" (backlit poster depicting the current season)
- "Skylight" (Soundlight ceiling panels, light & acoustics properties)
- Vertical gardens

c) dementia symptoms relieving means are used

- Walking route established
- Dead end issue solved
- Activities offered (activity boards, multisensory lounge, multisensory room, craft room)
- Silent room established
- Wood present
- Way-finding and recognition of own door improved.

Working on the project, I faced several challenging spatial tasks.

One of them was lack of the day light. The application of the Soundlight ceiling panels was a success. It helps to create inner yard atmosphere and fix the lighting and acoustics problems at once.

Another one was a question, how to organize walking route, if the space does not have any loop, and how to make the patient to prefer following the route, not to be interested in the corridor's dead ends. I use special tools

found from the research to distract the patients from the unwanted areas and to make them to be interested in staying at the lounges and walking along the corridor.

L-shaped wall in the center of the dining/living room seemed to be a disadvantage of the space. Sometimes interior's challenging details can be successfully turned into the most attractive part of the space. I suggest to finish the wall by wooden panels with linden leaf relief. The wall starts to operate as a navigation mark, taction and motor skills improving point and as an artwork. In case of Lehmuskoti the social space's L-shaped wall became a "linden tree trunk", symbolizing Lehmus (linden tree). There is a bench "under the tree".

I tried to use the particular space's possibilities and to compensate the disadvantages.

The appearance of the redesigned spaces has changed radically. I believe the Lehmuskoti's users would appreciate the modification.

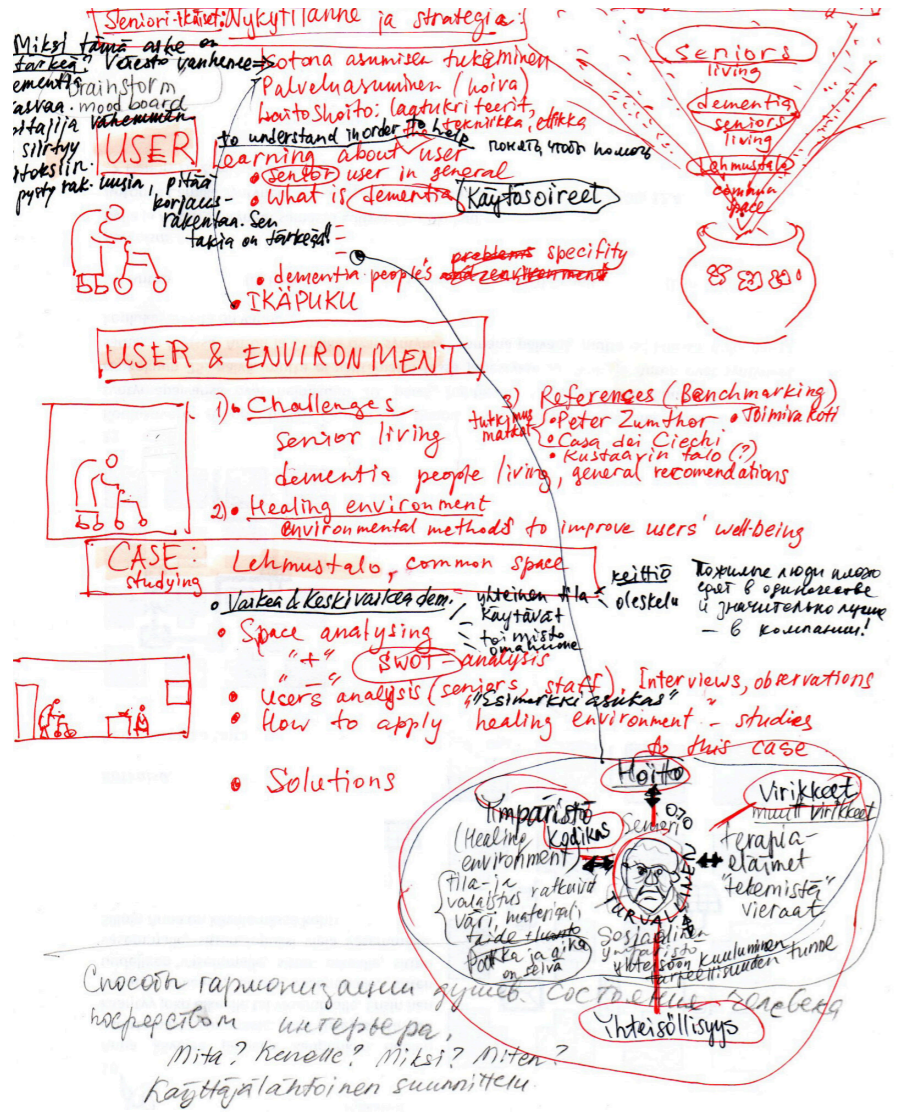


Image 166: Veselovskaya 2013

9.2 PROCESS ESTIMATED AFTERWARDS

The theme of environmental design for the demented is studied already very well worldwide. In this thesis, sources were thoroughly reviewed and existing real-life example studied. After the research phase, the target has further clarified: dementia-friendliness can be achieved through the environment which relieves the symptoms.

During the process I experienced difficulties managing with various means relieving the symptoms: in which degree should I use them not to overload the space. The second issue was how to control the means' interaction between each other - probably there should be some kind of hierarchy.

Time by time I found myself stepping aside from the whole-picture approach and paying more attention to design of the parts. Now I would like to see the main premises (corridors and dining/living room) stylistically in a stronger connection to each other.

Thinking afterwards, I would narrow down the scope to have a possibility to go deeper into details.

9.3 CONCLUSION

Dementia care unit is a special subject which involves user-friendly approach. The research helped me to formulate the task and clarify the particularity of this approach: I tried to achieve the dementia-friendliness through relieving the symptoms.

The important part of the work was collecting the tools which help to create dementia-friendly environment. The collection includes a set of images explaining the design principles of relieving the symptoms.

During the process I faced the issue of facilities' homelike atmosphere. I think it is not studied enough yet. The concept of homelikeness is treated as self-evident by default, but in reality it can mean different things for everyone: people's homes differ. Another thought was about mismatching of homelikeness' idea and the scale of the large facilities. Why to try to decorate functionally semi-private premises into private ones, if the scale is not of a private space?

The outcome of my reflections was:

- There is no such a concept like "universal homelikeness"
- Automatic applying of homelike style does not work in large facilities.

Instead of homelike atmosphere, other means (like artwork or nature presence) can be used in large scale units. These means would achieve the same task: to make the space less institutional.

So, having the tools collected and the dementia-friendliness principles clarified, I applied some of them to the particular case - Lehmuskoti dementia unit. Using this specific example I showed how the principles can be used practically.

Summarizing the work, I find the following points as the most significant:

- Formulating the task/approach
- Presenting the collection of tools
- Presenting how the tools can be applied to the particular case.

The collection of dementia symptoms relieving tools can be useful for designers who will address this theme. I believe the project can encourage to improve the environment of other dementia care units in a corresponding way.

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Image 146-154: Veselovskaya, O. 2014

Image 155, 156: Veselovskaya, O. 2013

Image 157, 158: Veselovskaya, O. 2014

Image 159, 160: Veselovskaya, O. 2013

Image 161, 162: Veselovskaya, O. 2014

Image 163: Veselovskaya, O. 2013

Image 164, 165: Veselovskaya, O. 2014

Image 166: Veselovskaya, O. 2013

APPENDIXES

APPENDIX 1. LEHMUSKOTI STAFF'S INTERVIEWING

ILMARI HELANDERIN VANHUSTEN SÄÄTIÖ, MAUNULAN PALVELUKOTI, LEHMUSKOTI
-DEMENTIAYKSIKKÖ

OPINNÄYTETYÖN TUTKIMUSOSAAN LIITTYVÄ KYSELY

Haastattelija: *Olga Veselovskaya, IMIAD-opiskelija (sisustusarkkitehtuuri),
Lahden Ammattikorkeakoulu*

Vastaajat: *kolme lähihoitajaa*

20.11.2013 klo 13:30-14:40

1. Yleiset kysymykset

Lehmuskodin asukkaiden määrä: **20.**

Asutaanko yhden hengen huoneissa: **18, ja 1+1 (kaksi) vuodepotilasta
samassa huoneessa.**

Kuinka kauan asukkaat asuvat täällä, keskimäärin: **1-10 vuotta**

Onko asukkaiden vaihtuvuutta? (kun jokin joutuu sairaalahoitoon, pää-
seekö toinen henkilö asumaan hänen huoneeseen). **Ei.**

Miten usein tapahtuu ulkoilu? **Kesällä usein: aidatulla terassilla. Muuten
vain omaisten ja vapaaehtoisten kanssa (Pro Maunula ry)**

2. Asukkaista

Kuinka moni asukas osaa löytää oman huoneensa itsenäisesti? **2-5 asu-
kasta.**

Tilan hahmottamiseen liittyvät ongelmat? **Ei osaa löytää omaa huonetta. Ei
hahmota sohvaa/tuolia, ovia. Kynnykset uusissa vessoissa on suuri haaste
(kompastusvaara). Suurimmalla osalla asukkaita näkö on yllättävän hyvä.**

Onko levottomuutta? **On! (Innostusta vastajien joukossa).** Yksi asukas
on tosi aggressiivinen, vaarallinen muille. Hän tuhoaa oman huoneensa,
rikkoo tavaroita, ryntää toisten huoneisiin, ja aiheuttaa vaaratilanteita. Ja
kovat äänetkin.

Olisiko tarpeen järjestää "hiljaisen huoneen"? **Mikä tämä on? <minun seli-
tykseni jälkeen> Se olisi ihan kiva!**

Kuinka yleistä on asukkaiden vaeltelua? **On!** Mitä tämä tarkoittaa tilallis-
esti? **Ulko-ovet ja poistumistiet houkuttelee poistumaan. Poispyrkiminen
kuuluu tähän sairauden kuvaan. He yrittävät paeta pois tästä tilanteesta,
nuoruuteen ja lapsuuteen, missä kaikki on heille tuttu, mistä heillä on mieli-
kuva tallessa.**

Onko vuorokausirytmien häiriötä? **Ei varsinaisesti. Ei näytä olevan ongelma.**

3. Hoitotyöstä

Onko henkilökunnalla oma taukotila? **Ei ole; toimisto toimii taukotilana.**

Hoitotilannet: haasteet tiloittain

Yhteinen tila (tupakeittiö)? **Keittiö... kodinkoneet!!! Astiat! Laatikot on lukit-
tava. Itsensä polttamisen vaara. Jonkun on vartioitava keittiö.**

Käytävä? **Omien huoneiden ovet eivät ole tunnistettavissa. Käytävän
leveys on ok.**

Asuinhuone? **Haasteena on (vanhan mallin) pesutila! Todella ahdas. Pitää
mahtua asukas ja kaksi hoitajaa. Rollattorin kanssa asukas ei mahdu. Uud-**

istetuissa vessoissa haasteena on kynnys.

Yhteinen pesuhuone (suihkutila)? **Se toimii hyvin.**

4. Tupakeittiö ja käytävät

4-a. Yhteinen tila (tupakeittiö).

Kuinka paljon käytössä? **Koko ajan.** Onko tykätty? Tykkävätkö asukkaat? **Kyllä, tuntuu siltä.** He tykkävät istua, missä ihmiset liikkuu, tarkkailla ja katsoa touhuja. Toisaalta, on vaikea sanoa, tykkääkö he vai onko se vain pakko istua, koska he eivät pääse itsenäisesti näistä istuinryhmän kalusteista ylös (!) Sohvat ovat sen verran matalia ja pehmeitä, että aina tarvitaan hoitajan apua, kun haluaa ylös. Tykkäättekö te, henkilökunta? **No ei! Masentavaa! Ei kodinomainen (huonekalujen takia?) Tilan hyvä puoli on avonaisuus.**

Mitä siellä tapahtuu? **Ruokailu.** Muuten asukkaat istuvat täällä ja tarkkailevat, mitä tapahtuu. Täällä voi katsoa TV-ohjelmia, kuunnella radiota, seurustella.

Mitä tekemistä on tarjoilla asukkaille? (mihin he pystyvät) **Kerran viikossa käy virikeohjaaja, silloin heillä on tuolijumppa.** Välillä tulee omaiset koirien kanssa, joskus meillä oli kissakin vieraana. **Kyllä asukkaat innostuu eläimistä aina!**

“Haluan olla tarpeellinen”: miten asukkaat pystyvät “toteuttaa itsensä”, tuntee itseään tarpeellisina? **Kyllä muutamalla on pyrkimys tehdä jotain, auttaa.** Varmaan heille voisi keksiä jotain tekemistä, esim., pyyhkiä pöytiä, kattaa pöydän.

TV:n katselu tupakeittiön yhteydessä – onko hyvä ratkaisu, vai pitäisikö olla erillisessä tilassa? Häiritseekö meteli? **Välillä TV ja radio ovat samaan aikaan päällä.** Hoitajat vastaa niistä ja ohjaa. Ei saa olla molemmat päällä.

Kuinka iso merkitys yhteisellä tilalla on? **On tosi iso.**

Tapahtuuko henkilökunnan ruokailu asukkaiden kanssa samaan aikaan? **Välillä, mutta harvoin syödään “esimerkkinä” asukkaiden kanssa.** Ylipäätänsä tämä ei toimii, koska tarvitaan henkilökuntaa koko ajan autamaan asukkaita (he eivät pysty tekemään sitä itsenäisesti). Henkilökunnalla on ruokatauko, milloin hoitajat käyvät palvelutalon ruokalassa. Ruokailuprosessi on hyvin kaoottinen, paikalla on 18 asukasta (vuodepotilaat syövät omissa huoneissaan) ja 3-7 hoitajaa. Ennen oli erillinen pöytä “paremmille” (saivat veitsen ja pystyivät levittämään voita leiville itsenäisesti), mutta ei ole sellaisia enää. Ruokailu 4 kertaa päivässä (aamiainen, lounas, päiväkahvit, päivällinen).

4-b. Käytävät

Mikä on haasteena, mitä voisi olla eri tavalla? **Laitosmaisii!!!**

5. Valaistus tiloittain

Valaistus tiloittain

	Tarpeellinen?	Häikäisyä?	Säädettävissä? (yö- ja päivävalo)	Toiveet
Tupakeittiö	kyllä	Jonkin verran	Kyllä; Katto+muut valot ohjataan erikseen	
Käytävät	kyllä		kyllä	
Pyykinpesu	kyllä			
Yhteinen suihkutila	kyllä			
Asuinhuoneet	Kyllä (vaihdetaan pian)		Ei	Yövalo! (nyt vessan ovi jätetään yöksi raolle – wc:n valo yövaloksi)
Asuinhuoneen wc	Kyllä		Ei	

Miten on huomioitu tiloittain

	Turvallisuus	Kodikkuus
Tupakeittiö	Kodinkoneet erittäin vaarallisia. Keittiö on pakko olla, kun siellä hoidetaan fiskit, "pikkuruokaa" (voileivät, pullat jne.)	
Käytävät	Lattia on liukas, kun siellä on vettä	Ei...

6. Lehmuskoti erillisenä yksikkönä

Mikä on tämän tilan suurin haaste teidän näkökulmastanne? **Kodinomaisuuden, viihtyvyyden puute. Yhteinen tila on ahdistava, näyttää pienemmältä. Synkkä!**

Mitä tärkeää jäi kertomatta tähän tilaan liittyen? **Kaivataan avaruutta!!! Luontoelementtejä. Kuvia luonnosta.**

APPENDIX 2. DRAWINGS UP TO SCALE

(NOT INCLUDED IN THE BOOKLET'S DIGITAL VERSION)